

## SEQUENCE LISTING

**SEQ ID NO: 1                      human IPM 150 cDNA, isoform A (3330 bp)**

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1  TAAACCAAGA AGGTTATCCT CAATCATCTG GTATCAATAT ATAATTATTT TTCACATTTT
61 TGTTACTTTT TAATGAGATT TGAGGTTGTT CTGTGATTGT TATCAGAATT ACCAATGCAC
121 AAAAGCCAGA ATGTATTTGG AAAGTAGAAG AGCTATTTTT GTTTTTTGA TTTTCTCCA
181 AGTTCAAGGA ACCAAAGATA TCTCCATTAA CATATACCAT TCTGAACTA AAGACATAGA
241 CAATCCCCCA AGAAATGAAA CAACTGAAAG TACTGAAAAA ATGTACAAAA TGTCAACTAT
301 GAGACGAATA TTCGATTTGG CAAAGCATCG AACAAAAAGA TCCGCATTTT TCCCAACGGG
361 GGTTAAAGTC TGTCCACAGG AATCCATGAA ACAGATTTTA GACAGCTTTC AAGCTTATTA
421 TAGATTGAGA GTGTGTCAGG AAGCAGTATG GGAAGCATAT CGGATCTTTC TGGATCGCAT
481 CCCTGACACA GGGGAATATC AGGACTGGGT CAGCATCTGC CAGCAGGAGA CCTTCTGCCT
541 CTTTGACATT GGAAGAAATC TCAGCAATTC CCAGGAGCAC CTGGATCTTC TCCAGCAGAG
601 AATAAAACAG AGAAGTTTCC CTGACAGAAA AGATGAAATA TCTGCAGAGA AGACATTGGG
661 AGAGCCTGGT GAAACCATTG TCATTTCAAC AGCAATCTAC ATTTCAAAGA CTTGGGCAGT
721 ATTCTAAGAA AACCTCAGA AGAGCAAATT CAAGATGTTG CCAACGCTC ACTTGGGCTT
781 TTCCCTCTCA CTCCTGATGA CACCCTCCTC AATGAAATTC TCGATAATAC ACTCAACGAC
841 ACCAAGATGC CTACAACAGA AAGAGAAACA GAATTCGCTG TGTGGAGGA GCAGAGGGTG
901 GAGCTCAGCG TCTCTCTGGT AAACCAGAAG TTCAAGGCAG AGCTCGCTGA CTCCCAGTCC
961 CCATATTACC AGGAGCTAGC AGGAAAGTCC CAACTTCAGA TGCAAAAGAT ATTTAAGAAA
1021 CTTCCAGGAT TCAAAAAAAT CCATGTGTTA GGATTTAGAC CAAAGAAAGA AAAAGATGGC
1081 TCAAGCTCCA CAGAGATGCA ACTTACGGCC ATCTTTAAGA GACACAGTGC AGAAGCAAAA
1141 AGCCCTGCAA GTGACCTCCT GTCTTTTGAT TCCAACAAAA TTGAAAGTGA GGAAGTCTAT
1201 CATGGAACCA TGGAGGAGGA CAAGCAACCA GAAATCTATC TCACAGCTAC AGACCTCAAA
1261 AGGCTGATCA GCAAAGCACT AGAGGAAGAA CAATCTTTGG ATGTGGGGAC AATTCAGTTC
1321 ACTGATGAAA TTGCTGGATC ACTGCCAGCC TTTGGTCCTG ACACCCAATC AGAGCTGCCC
1381 ACATCTTTTG CTGTTATAAC AGAGGATGCT ACTTTGAGTC CAGAACTTCC TCCTGTTGAA
1441 CCCCAGCTTG AGACAGTGGA CGGAGCAGAG CATGGTCTAC CTGACACTTC TTGGTCTCCA
1501 CCTGCTATGG CCTCTACCTC CCTGTCAGAA GCTCCACCTT TCTTTATGGC ATCAAGCATC
1561 TTCTCTCTGA CTGATCAAGG CACCACAGAT ACAATGGCCA CTGACCAGAC AATGCTAGTA
1621 CCAGGGCTCA CCATCCCCAC CAGTGATTAT TCTGCAATCA GCCAACTGGC TCTGGGAATT
1681 TCACATCCAC CTGCATCTTC AGATGACAGC CGATCAAGTG CAGGTGGCGA AGATATGGTC
1741 AGACACCTAG ATGAAATGGA TCTGTCTGAC ACTCTGCCC CATCTGAGGT ACCAGAGCTC
1801 AGCGAATATG TTTCTGTCCC AGATCATTTT TTGGAGGATA CCACTCCTGT CTCAGCTTTA
1861 CAGTATATCA CCACTAGTTC TATGACCATT GCCCCCAAGG GCCGAGAGCT GGTAGTGTTT
1921 TTCAGTCTGC GTGTTGCTAA CATGGCCTTC TCCAACGACC TGTTCACAA GAGCTCTCTG
1981 GAGTACCGAG CTCTGGAGCA ACAATTCACA CAGCTGCTGG TTCCATATCT ACGATCCAAT
2041 CTTACAGGAT TTAAGCAACT TGAATACTT AACTTCAGAA ACGGGAGTGT GATTGTGAAT
2101 AGCAAAATGA AGTTTGCTAA GTCTGTGCCG TATAACCTCA CCAAGGCTGT GCACGGGGTC
2161 TTGGAGGATT TTCGTTCTGC TGCAGCCCAA CAACTCCATC TGGAAATAGA CAGCTACTCT
2221 CTCAACATTG AACCAGCTGA TCAAGCAGAT CCCTGCAAGT TCCTGGCCTG CGGCGAATTT
2281 GCCAATGTG TAAAGAACGA ACGGACTGAG GAAGCGGAGT GTCGCTGCAA ACCAGGATAT
2341 GACAGCCAGG GGAGCCTGGA CGGTCTGGAA CCAGGCCTCT GTGGCCCTGG CACAAAGGAA
2401 TGCAGGTCC TCCAGGGAAA GGGAGCTCCA TGCAGGTTGC CAGATCACTC TGAAAATCAA
2461 GCATACAAAA CTAGTGTTAA AAAGTTCCAA AATCAACAAA ATAACAAGGT AATCAGTAAA
2521 AGAAATTCTG AATTACTGAC CGTAGAATAT GAAGAATTTA ACCATCAAGA TTGGGAAGGA
2581 AATTA AAAAC TGAAAATGTA CAATTATCAC TTAGGCTATC TCAAGAGAGA TGATTTGCCT
2641 TCTCAAGGAA AATGGAGACA GGCATATTCA TGGGTCATCA AAATCCAGAC ATACAGTCAA
2701 CACTGAGAAT CAGCACACAC CATATTTCAA ATATAGAAGA GTCATGTACT TGGCAACCAG
2761 TAAATTCTGA AAAAAAAGAC ACTTACTTAT TATTA AAAACC CCAAATGCAA TCAGCGAAAC
2821 ATATTTTAC TATTCTTGGG TGATAGTCAA AATGATCATA AGCCAGGTTT GCTTCCACCT
2881 TCCCTGAAAA TTTTACTCAC AGATCATTTG CAACAAGCAT AGCTTACTTA TTGTTTAGGG

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2941	ACTGAACAAT	TTATTGGGAA	GCAAACCTCTT	TATATGCTAG	AAAGTACATT	TAAAAGATGA
3001	CTACTTACGC	AGGGAGATGC	AGGTCTCTCT	AAACGCATGA	ATGTATGTAG	TGTGTAGGCA
3061	CTGTAGTGAG	TGTATATATG	CTCCACACTA	CGTCTGATAA	ACACAAACCT	CAGTATTCAG
3121	TTATTAGGCA	CACTAGTTTT	ATACGCAACT	ACTGCTTACA	TAGTAGACTG	TTTTGTTGCC
3181	AATAATCTTT	GAATTGTTCT	TTAAAAGAAA	CTGAGGTTCA	GATACACATA	CCATGGAAAA
3241	ATCTTACTTT	TCTTGTTACT	ACACAAAGCT	ATTTTAAAGA	AGATGCTATG	TTGGGAGAAG
3301	GGCGAAGTTG	TACTATATGA	CATAATCAAT			

**SEQ ID NO: 2      Human IPM 150 amino acid sequence, isoform A**

1	MYLETRRAIF	VFWIFLQVQG	TKDISINIYH	SETKDIDNPP	RNETTESTEK	MYKMSTMRR
61	FDLAKHRTKR	SAFFPTGVKV	CPQESMKQIL	DSLQAYYRLR	VCQEAVWEAY	RIFLDRIPT
121	GEYQDWVSIC	QQETFCLFDI	GKNFSNSQEH	LDLLQRIKQ	RSFPDRKDEI	SAEKTGEPG
181	ETIVISTDVA	NVSLGPFPLT	PDDTLNEIL	DNTLNDTKMP	TTERETEFV	LEEQRVELSV
241	SLVNQKFKA	LADSQSPYYQ	ELAGKSQLQM	QKIFKKLPGF	KKIHLVGF	KKEKDGSSST
301	EMQLTAIFKR	HSAEAKSPAS	DLLSFDSNKI	ESEEVYHGT	EEDKQPEIYL	TATDLKRLIS
361	KALEEEQSLD	VGTIQFTDEI	AGSLPAFGPD	TQSELPTSFA	VITEDATLSP	ELPPVEPQLE
421	TVDGAEHGLP	DTSWSPPAMA	STSLSEAPPF	FMASSIFSLT	DQGTDTMAT	DQTMLVPGLT
481	IPTSDYSAIS	QLALGISHPP	ASSDDSRSSA	GGEDMVRHLD	EMDLSPTAP	SEVPELSEYV
541	SVPDHFLDT	TPVSALQYIT	TSSMTIAPKG	RELVVFFSLR	VANMAFSNDL	FNKSSLEYRA
601	LEQQTQLLV	PYLRNLTGF	KQLEILNFRN	GSVIVNSMK	FAKSVPYNLT	KAVHGVLEDF
661	RSAAAQQLHL	EIDSYSLNIE	PADQADPCKF	LACGEFAQCV	KNERTEEAEC	RCKPGYDSQG
721	SLDGLEPGLC	GPGTKECEVL	QKGKAPCRLP	DHSENQAYKT	SVKKFQNNQN	NKVISKRNSE
781	LLTVEYEEFN	HQDWEGN				

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**SEQ ID NO: 3      Human IPM 150 cDNA sequence, isoform B**

1	GGGAGCTATT	TTTGTTTTTT	GGATTTTTCT	CCAAGTTCAA	GGAACCAAAG	TGTGTCAGGA
61	AGCAGTATGG	GAAGCATATC	GGATCTTTCT	GGATCGCATC	CCTGACACAG	GGGAATATCA
121	GGACTGGGTC	AGCATCTGCC	AGCAGGAGAC	CTTCTGCCTC	TTTGACATTG	GAACCAACTT
181	CAGCAATTCC	CAGGAGCACC	TGGATCTTCT	CCAGCAGAGA	ATAAACACAG	GAAATTTCCC
241	TGACAGAAAA	GATGAAATAT	CTGCAGAGAA	GACATTGGGA	GAGCCTGGTG	AAACCTTGTG
301	CATTTCAACA	GATGTTGCCA	ACGTCTCACT	TGGGCCTTTC	CCTCTCACTC	CTGATGACAC
361	CCTCCTCAAT	GAAATTCTCG	ATAATACACT	CAACGACACC	AAGATGCCTA	CAACAGAAAG
421	AGAAACAGAA	TTCGCTGTGT	TGGAGGAGCA	GAGGGTGGAG	CTCAGCGTCT	CTCTGGTAAA
481	CCAGAAGTTC	AAGGCAGAGC	TCGCTGACTC	CCAGTCCCCA	TATTACCAGG	AGCTAGCAGG
541	AAAGTCCCAA	CTTCAGATGC	AAAAGATATT	TAAGAACTT	CCAGGATTCA	AAAAAATCCA
601	TGTGTTAGGA	TTTAGACCAA	AGAAAGAAAA	AGATGGCTCA	AGCTCCACAG	AGATGCAACT
661	TACGGCCATC	TTTAAGAGAC	ACAGTGCAGA	AGCAAAAAGC	CCTGCAAGTG	ACCTCCTGTC
721	TTTTGATTCC	AACAAAATTG	AAAGTGAGGA	AGTCTATCAT	GGAAACATGG	AGGAGGACAA
781	GCAACCAGAA	ATCTATCTCA	CAGCTACAGA	CCTCAAAAGG	CTGATCAGCA	AAGCACTAGA
841	GGAAGAACAA	TCTTTGGATG	TGGGGACAAT	TCAGTTCACT	GATGAAATTG	CTGGATCACT
901	GCCAGCCTTT	GGTCCTGACA	CCCAATCAGA	GCTGCCACCA	TCTTTTGCTG	TTATAACAGA
961	GGATGCTACT	TTGAGTCCAG	AACTTCCTCC	TGTTGAACCC	CAGCTTGAGA	CAGTGGACGG
1021	AGCAGAGCAT	GGTCTACCTG	ACACTTCTTG	GTCTCCACCT	GCTATGGCCT	CTACCTCCCT
1081	GTCAGAAGCT	CCACCTTTCT	TTATGGCATC	AAGCATCTTC	TCTCTGACTG	ATCAAGGCAC
1141	CACAGATACA	ATGGCCACTG	ACCAGACAA	GCTAGTACCA	GGGCTCACCA	TCCCCACCAG
1201	TGATTATTCT	GCAATCAGCC	AACTGGCTCT	GGGAATTTCA	CATCCACCTG	CATCTTTCAGA
1261	TGACAGCCGA	TCAAGTGACG	GTGGCGAAGA	TATGGTCAGA	CACCTAGATG	AAATGGATCT
1321	GTCTGACACT	CCTGCCCAT	CTGAGGTACC	AGGGCTCAGC	GAATACGTTT	CTGTCCCAGA
1381	TCATTTCTTG	GAGGATACCA	CTCCTGTCTC	AGCTTTACAG	TATATCACCA	CTAGTTCTAT
1441	GACCATTGCC	CCCAAGGGCC	GAGAGCTGGT	AGTGTCTTTC	AGTCTGCGTG	TTGCTAACAT
1501	GGCCTTCTCC	AACGACCTGT	TCAACAAGAG	CTCTCTGGAG	TACCGAGCTC	TGGAGCAACA
1561	ATTCACACAG	CTGCTGGTTC	CATATCTACG	ATCCAATCTT	ACAGGATTTA	AGCAACTTGA
1621	AATACTTAAC	TTCAGAAACG	GGAGTGTGAT	TGTGAATAGC	AAAAATGAAGT	TTGCTAAGTC

1681	TGTGCCGTAT	AACCTCACCA	AGGCTGTGCA	CGGGGTCTTG	GAGGATTTTC	GTTCTGCTGC
1741	AGCCCAACAA	CTCCATCTGG	AAATAGACAG	CTACTCTCTC	AACATTGAAC	CAGCTGATCA
1801	AGCAGATCCC	TGCAAGTTCC	TGGCCTGCGG	CGAATTTGCC	CAATGTGTAA	AGAACGAACG
1861	GACTGAGGAA	GCGGAGTGTC	GCTGCAAACC	AGGATATGAC	AGCCAGGGGA	GCCTGGACGG
1921	TCTGGAACCA	GGCCTCTGTG	GCCCTGGCAC	AAAGGAATGC	GAGGTCCTCC	AGGGAAAGGG
1981	AGCTCCATGC	AGGTTGCCAG	ATCACTCTGA	AAATCAAGCA	TACAAAACTA	GTGTTAAAAA
2041	GTTCCAAAAT	CAACAAAATA	ACAAGGTAAT	CAGTAAAAGA	AATTCTGAAT	TACTGACCGT
2101	AGAATATGAA	GAATTTAACC	ATCAAGATTG	GGAAGGAAAT	TAAAAACTGA	AAATGTACAA
2161	TTATCACTTA	GGCTATCTCA	AGAGAGATGA	TTTGCCTTCT	CAAGGAAAAT	GGAGACAGGC
2221	ATATTCATGG	GTCATCAAAA	TCCAGACATA	CAGTCAACAC	TGAGAATCAG	CACACACCAT
2281	ATTTCAAATA	TAGAAGAGTC	ATGTACTTGG	CAACCAGTAA	ATTCTGAAAA	AAAAGACACT
2341	TACTTATTAT	TAAAACCCCA	AATGCAATCA	GCGAAACATA	TTTTTACTAT	TCTTGGATGA
2401	TAGTCAAAAT	GATCATAAGC	CAGGTTTGCT	TCCACCTTCC	CTGAAAATTT	TACTCACAGA
2461	TCATTTGCAA	CAAGCATAGC	TTACTTATTG	TTTAGGGACT	GAACAATTTA	TTGGGAAGCA
2521	AACTCTTTAT	ATGCTAGAAA	GTACATTTAA	AAGATGACTA	CTTACGCAGG	GAGATGCAGG
2581	TCTCTCTAAA	CGCATGAATG	TATGTAGTGT	GTAGGCACTG	TAGTGAGTGT	ATATATGCTC
2641	CACACTACGT	CTGATAAACA	CAAACCTCAG	TATTCAGTTA	TTAGGCACAC	TAGTTTTATA
2701	CGCAACTACT	GCTTACATAG	TAGACTGTTT	TGTTGCCAAT	AATCTTTGAA	TTGTTCTTTA
2761	AAAGAAACTG	AGGTTTCAGAT	ACACATACCA	TGGAAAAATC	TTACTTTTCT	TGTTACTACA
2821	CAAAGCTATT	TTAAAGAAGA	TGCTATGTTG	GGAGAAGGGC	GAAGTTGTAC	TATATGACAT
2881	AATCAAT					

**SEQ ID NO: 4                      Human IPM 150 amino acid sequence, isoform B**

1	MYLETRRAIF	VFWIFLQVQG	TKVCQEAVWE	AYRIFLD RIP	DTGEYQDWVS	ICQQETFCLF
61	DIGKNFSNSQ	EHLDLLQQR I	KQRSFPDRKD	EISAEKTLGE	PGETIVISTD	VANVSLGPFP
121	LTPDDTLLNE	ILDNTLNDTK	MPTTERETEF	AVLEEQRVEL	SVSLVNQKFK	AELADSQSPY
181	YQELAGKSQL	QMQKIFKKLP	GFKKIHVLF	RPKKEKDGSS	STEMQLTAIF	KRHSAEAKSP
241	ASDLLSFDSN	KIESEEVYHG	TMEEDKQPEI	YLATDLKRL	ISKALEEEQS	LDVGTIQFTD
301	EIAGSLPAFG	PDTQSELPTS	FAVITEDATL	SPELPPVEPQ	LETVDGAEHG	LPDTSWSPPA
361	MASTSLSEAP	PPFMASISF	LTDQGTDTM	ATDQTMLVPG	LTIPSTDYSA	ISQLALGISH
421	PPASSDDSR S	SAGGEDMVRH	LDEMDLSDTP	APSEVPGLSE	YVSVDPHFLE	DTTPVSALQY
481	ITTSSMTIAP	KGRELVVFFS	LRVANMAFSN	DLFNKSSLEY	RALEQQFTQL	LVPYLRSLNT
541	GFKQLEILNF	RNGSVIVNSK	MKFAKSVPIN	LTKAVHGVLE	DFRSAAQQL	HLEIDSYSLN
601	IEPADQADPC	KFLACGEFAQ	CVKNERTEEA	ECRCKPGYDS	QGSLDGLEPG	LCPGPTKECE
661	VLQKGKAPCR	LPDHSENQAY	KTSVKKFQNQ	QNNKVISKR N	SELLTVEYEE	FNHQDWEGN

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**SEQ ID NO: 5                      Human IPM 150 cDNA sequence, isoform C**

1	AAATTAACAC	CCTCATAAAG	GTAAACCAAG	AAGGTTATCC	TCAATCATCT	GGTATCAATA
61	TATAATTATT	TTTCACATTT	CTGTTACTTT	TTAATGAGAT	TTGAGGTTGT	CTGTGATTGT
121	TATCAGAATT	ACCAATGCAC	AAAAGCCAGA	ATGTATTTGG	AAACTAGAAG	AGCTATTTTT
181	GTTTTTTTGA	TTTTTCTCCA	AGTTCAAGGA	ACCAAAGATA	TCTCCATTAA	CATATACCAT
241	TCTGAAACTA	AAGACATAGA	CAATNCCCCA	AGAAATGAAA	CAACTGAAAG	TACTGAAAAA
301	ATGTACAAAA	TGTCAACTAT	GAGACGAATA	TTCGATTTGG	CAAAGNATCG	AACAAAAAGA
361	TCCGCATTTT	TCCCAACGGG	GGTTAAAGTC	TGTCCACAGG	AATCCATGAA	ACAGATTTTA
421	GACAGTCTTC	AAGCTTATTA	TAGATTGAGA	GTGTGTCAGG	AAGCAGCATG	GGAAGCATAT
481	CGGATCTTTC	TGGATCGCAT	CCCTGACACA	GGGGAATATC	AGGACTGGGT	CAGCATCTGC
541	CAGCAGGAGA	CCTTCTGCCT	CTTTGACATT	GGAAAAAACT	TCAGCAATTC	CCAGGAGCAC
601	CTGGATCTTC	TCCAGCAGAG	AATAAAACAG	AGAAGTTTCC	CTGACAGAAA	AGATGAAATA
661	TCTGCAGAGA	AGACATTGGG	AGAGCCTGGT	GAAACCATTG	TCATTTCAAC	AGCAATCTAC
721	ATTTCAAAGA	CTTGGGCAGT	ATTCTAAGAA	AACCCTCAGA	AGAGCAAATT	CAAGATGTTG
781	CCAACGTCTC	ACTTGGGCCT	TTCCCTCTCA	CTCCTGATGA	CACCCTCTC	AATGGAATTC
841	TCGATAATAC	ACTCAACGAC	ACCAAGATGC	CTACAACAGA	AAGAGAAACA	GAATTCGCTG
901	TGTTGGAGGA	GCAGAGGGTG	GAGCTCAGCG	TCTCTCTGGT	AAACCAGAAG	TTCAAGGCAG

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961 AGCTCGCTGA CTCCCAGTCC CCATATTACC AGGAGCTAGC AGGAAAGTCC CAACTTCAGA
1021 TGCAAAAGAT ATTTAAGAAA CTTCCAGGAT TCAAAAAAAT CCATGTGTTA GGATTAGAC
1081 CAAAGAAAGA AAAAGATGGC TCAAGCTCCA CAGAGATGCA ACTTACGGCC ATCTTTAAGA
1141 GACACAGTGC AGAAGCAAAA AGCCCTGCAA GTGACCTCCT GTCTTTTGAT TCCAACAAAA
1201 TTGAAAGTGA GGAAGTCTAT CATGGAACCA TGGAGGAGGA CAAGCAACCA GAAATCTATC
1261 TCACAGCTAC AGACCTCAAA AGGCTGATCA GCAAAGCACT AGAGGAAGAA CAATCTTTGG
1321 ATGTGGGGAC AATTCAGTTC ACTGATGAAA TTGCTGGATC ACTGCCAGCC TTTGGTCCTG
1381 ACACCCAATC AGAGCTGCCC ACATCTTTTG CTGTTATAAC AGAGGATGCT ACTTTGAGTC
1441 CAGAACTTCC TCCTGTTGAA CCCCAGCTTG AGACAGTGGA CGGAGCAGAG CATGGTCTAC
1501 CTGACACTTC TTGGTCTCCA CCGTCTATGG CCCTACCTCC CTGTCAGAAG CTCCACCTTT
1561 CTTTATGGCA TCAAGCATCT TCTCTCTGAC TGATCAAGGC ACCACAGATA CAATGGCCAC
1621 TGACCAGACA ATGCTAGTAC CAGGGCTCAC CATCCCCACC AGTGATTATT CTGCAATCAG
1681 CCAACTGGCT CTGGGAATTT CACATCCACC TGCATCTTCA GATGACAGCC GATCAAGTGC
1741 AGGTGGCGAA GGTATGGACA GAGACCTAGA TGAAATGGAT CTGTCTGACA CTCCTGCCCC
1801 ATCTGAGGTA CCAGAGCTCA GCGAATATGT TTCTGTCCCA GATCATTCTT TGGAGGATAC
1861 CACTCCTGTC TCAGCTTTAC AGTATATCAC CACTAGTTCT ATGACCATTG CCCCCAAGGG
1921 CCGAGAGCTG GTAGTGTCTC TCAGTCTGCG TGTGCTAAC ATGGCCTTCT CCAACGACCT
1981 GTTCAACAAG AGCTATTTGG AGTACCGAGC TCTGGAGCAA CAATTCACAC AGCTGCTGGT
2041 TCCATATCTA CGATCCAATC TTACAGGATT TAAGCAACTT GAAATACTTA ACTTCAGAAA
2101 CGGAGAGTGT ATTGTGAATA GCAAAATGAA GTTTGCTAAG TCAGTGCCGT ATAACCTCAC
2161 CAAGGCTGTG CACGGGTCTT TGGAGATT TCGTTCTGCT GCAGCCCAAC AACTCCATCT
2221 GGAAATAGAC AGCTACTCTC TCCC
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**SEQ ID NO: 6 Human IPM 150 amino acid sequence, isoform C**

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1 MYLETRRAIF VFWIFLQVQG TKDISINIYH SETKDIDNPP RNETTESTEK MYKMSTMRRRI
61 FDLAKHRTKR SAFFPTGVKV CPQESMKQIL DSLQAYYRLR VCQEAAWEAY RIFLD RIPDT
121 GEYQDWVSIC QQETFCFLFDI GKNFSNSQEH LDLLQRIKQ RSFPDRKDEI SAEKTLGEPG
181 ETIVISTAIY ISKTWAVF
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**SEQ ID NO: 7 Human IMPG1 gene, regulatory region**

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1 AGGGTGTAGG CTTTTGAACC AGGACTCTTT AGGTTTAAAT CCTAGCTCTG CCACATATAC
61 TTTATTCTCC TCAAATTTAA AAGAGATAGT ATTAACAGTG TTTATATTGT CATATTGAGG
121 AATCTATGGA TAATCTATGG ACATCTCTAA GAACAATGTC TATCCACAAC ACAAGAGCTC
181 AATATACAGT AGTAGTTGCA GTGTGTTTCA TGA CTGAGCA ATATGTAGCA TGTATAGTCA
241 AAATAATATA AAATCAAATA TTCAAAACT GAAATTACAA TAATACTGAT GAAGAAAGAT
301 GGAAAGATGT TTACAATGAG TAGAAAGGGT ATGTGTGGAA GTGAAGTTAT TCTCAATATC
361 TATTATTTGA TAATACCTAA AAGTGAAAAC CTCCAAAATA GTAATAGAGG CATGTTATTT
421 AGAAGTGCAA ATGAGACTAC TAGAAGAATT AGGTTGATGA AGTAAAAATG GCTCCCCTTT
481 GAAAGAAGGC ATGGGTAGAA GAAAGGCACA ATTTTTCTT ACAAACTTTG TAGAAAAAAA
541 GTATTTGACC CCTTAAACAC AGTGCATACA GATTTTAAAC ATTAAAACCA GACTTAAATC
601 AAAAAAGCCA CCTGTATGTA ATTCCAAATC AAAAGCAATT TATAAAGCAG AACATAGAAG
661 AGAATGGAGA CAGTTTCGCT ATCTGTGGAG ACTAATACAT ATTGATAAC CATATACTTT
721 CAGGGACAGA AATTAAGCTC TTTAATGGA TGTTCCTTGT ACATGTCATT TTAGAAAACA
781 TCTGACCCTA ACTGTCAGCC TTATTCTCTG TTTGGCAGAA CTCCCCCTGG CTCTCTGTGT
841 CACTGTAACA GGTGAATAAC TAAGAAAAAA CTGTGTCTGT AGACACTTGT TTATAATGGC
901 ATTCAGGGTC CTGGAGCTAG GCTGACAGAT GCTCCTCCAG AAGGTTAATG AGATAAAGGT
961 TCCTCCAGCT GGCCCTTAAG CAGAGATTAC ACCTGAGGGA AAGACAAGCA GATTATTCCA
1021 GAAACAGACA CTGCTACATG TTCTTCATAA ATTAACACCC TCATAAAGGT AAACCAAGAA
1081 GGTTATCCTC AATCATCTGG TATCAATATA TAATTATTTT TCACATTTCT GTTACTTTTT
1141 AATGAGATTT GAGGTTGTTC TGTGATTGTT ATCAGAATTA CCAATGCACA AAAGCCAGAA
1201 TGTATTTGGA AACTAGAAGA GCTATTTTTG TTTTTGGAT TTTTCTCCAA GTTCAAGGAA
1261 CCAAGGTAA GTTACTTAAA TGTTTACTTT TAAATTGCTT ATCTATAAAA TCTACCGATA

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1321 GAAGTGAATA TTTAGAACCA ACAAGGCTAC CAATTTATCT CACGGGCTAG TATATAGTAG
1381 GCCTTGAATA AATATTGCTT GATTGATTGA ATAATTAAC ATCAGAAATG ATTTTCACTT
1441 GATTTAATAT TTACTACATG GTCTTAAGTG CAGTGAAGAT TAACAAAATA GGAGAGATGA
1501 ATGCATCCTA TTTGCTGTTC TAAACATTC ATTGAAAATT CTTATTATTA AATGTAAATA
1561 NTATTAGTAG ATCTGGTGAA AACTAAACTC CATTTATCCA CCCGAAATTC AACCAAATAA
1621 AACCTAAAGG ATAAAAGTAA TGTTTTAAGT CATTTATGGT CAGACAAAAA AAAGTAAGTA
1681 TTTCTTACCT TCTCACAATG AAATCATGAG TTGCTTTCCC TTAGAAAATA GCAAACATTC
1741 TTCATCTTCA GGGTTCATGA TGACAACCAC TTCAAAATTT GGTTGTTTTT GAAAGTTGTA
1801 CGCATAAAAG AACTAGGCAA TGTATGTTCT TATGGCAAAT CTGCATCTGA ATATGAAA
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# **SEQ ID NO: 8      Mouse IPM 150 cDNA sequence, isoform A**

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1 ACAAGATTAT TCCAGGAACT GACCTGCTTC CGGATCCTCG AGAATTAGCA CCTTCATAGG
61 GTAAACCAGG GAGGTCGTCT GTACTCAGCC GGCACCTGGA TTTGATTATT TTTTCATATTT
121 CAGTCACCTT ATTTCTTTAA GTGTGACTTG GTATTGTTCT GTGATTTTTC AGAATTACCA
181 GTATACAGAA CCAGAATGAA TTTTCAAATT AAACATGCTA TCTTTGTTTT TGGGATTTTT
241 CTCCAAGTTC AAGGAATCAA AGATACCTCT ATTAAAAATAT TCAGTTCTGA AATTAAAAAAC
301 ATAGACAAAA CCCCAAGAAT CGAAACAATT GAAAGTACTT CAACAGTGCA CAAAGTGTC
361 ACCATGAAAC GAATATTGCA TTTGCCAAG CTTCGAACCA AAAGATCAGC ACTTTTCCCA
421 GCTGCTAACA TCTGTCCACA GGAATCCTTG AGACAGATTT TAGCAAGTCT TCAAGAATAT
481 TATAGACTGA GAGTATGTCA AGAAGTCGTG TGGGAAGCAT ATCGTATCTT TCTGGACCGA
541 ATTCTGACA CAGAGGAATA TCAAGACTGG GTCAGCCTCT GCCAGAAAGA AACCTTCTGC
601 CTCTTTGACA TTGGGAAAAA CTTCAGCAAC TCCCAGGAGC ACCTAGATCT TCTTCAGCAG
661 AGAATAAAAC AGAGAAGCTT CCCTGGGAGG AAAGATGAGA CAGCCTCCAT GGAGACACTG
721 GAAGCACCTA CTGAAGCCCC TGTGGTACCC ACAGATGTTT CCAGGATGTC CCTGGGGCCC
781 TTCCCCTTTC CTTCTGATGA CACAGACCTC AAGGAGATTG TCAGTGTGAC CCTCAAGGAC
841 ATTCAAAAGC CCACAACAGA AAGTAAAACA GAACCTATTC ACGTGTCTGA ATTCTCATCA
901 GAGGAGAAGG TGGAATTCAG CATCTCTCTG CCAAACCACA GGTTCAAGGC AGAGCTCACC
961 AACTCTGGGT CACCATACTA CCAGGAAGTG GTGGGACAGT CCCAACTGCA GTTGCAAAAG
1021 ATATTTAAGA AACTTCCAGG ATTCGGAGAA ATCCGTGTAT TAGGATTTAG ACCAAAGAAA
1081 GAAGAAGATG GTTCAAGCTC CACAGAAATA CAGCTTATGG CCATCTTTAA GAGGGACCAT
1141 GCAGAAGCAA AAAGCCCTGA TAGTCATCTA CTGTCTCTTG ATTCCAACAA AATTGAAAGT
1201 GAAAGAATCC ATCATGGAGT CATAGAAGAC AAACAACCAG AAACCTACCT CACAGTACA
1261 GACCTCAAAA AACTCATCAT ACAACTACTA GATGGAGACC TGTCTTGGT AGAAGGGAAA
1321 ATTCCATTCT GTGATGAAGT TACTGGGACA CTCTTCAGAC CTGTCACTGA ACCAGATCTG
1381 CCCAAGCCCC TTGCTGATGT CACAGAGGAT GCCACTTTGA GTCCAGAACT TCCTTTCGTT
1441 GAGCCTAGGC TTGAGGCAGT GGACAGAGAA GGATCTGAGC TGCCCTGGAAT GTCCTCCAAA
1501 GACAGTTCTT GGTCTCCACC TGTATCAGCC TCAATTTCCC GATCAGAAAA TCTACCTTCG
1561 TTTACACCTA GCATCTTCTC TCTAGATGCT CAAAGCCCCC CTCCCTTGAT GACCACTGGC
1621 CCAACAGCAC TCATCCCCAA GCCCCTCTC CCCACTATCG ATTATTCTAC CATCCGCCAA
1681 TTGCCTCTGG AATCGTCACA TTGGCCTGCA TCCTCCAGTG ACAGAGAGCT GATCACAAGC
1741 AGCCATGACA CAATCCGAGA CCTAGATGGC ATGGATGTGT CTGACACGCC AGCCTTGTC
1801 GAAATATCAG AACTGAGTGG ATACGATTCT GCCTCGGGTC AGTTCTTGGA GATGACCACA
1861 CCCATCCCAA CAGTACGGTT CATCACCACC AGCTCCGAGA CCATTGCCAC CAAGGGCCAG
1921 GAGCTAGTGG TATTCTTCAG CCTGCGTGTT GCTAACATGC CGTTCTCCTA TGACCTGTTC
1981 AACAAGAGTT CTCTGGAGTA TCAAGCCCTG GAACAACGAT TCACAGACCT GCTGGTTCCC
2041 TATCTACGAT CGAATCTTAC GGGATTTAAG CAACTGGAAA TACTCAGCTT CAGAAACGGA
2101 AGTGTGATCG TGAACAGCAA AGTGCGTTT GCAAAGGCGG TACCCTACAA CCTCACCCAG
2161 GCCGTGCGCG GGGTCTTGGA GGATCTTCGG TCCACCGCAG CTCAAGGGCT CAATCTGGAA
2221 ATCGAAAGCT ACTCCCTCGA CATTGAACCA GCTGATCAGG CGGATCCCTG CAAACTCCTA
2281 GACTGTGGCA AATTTGCCCA GTGTGTAAAG AATGAGTGGA CAGAGGAAGC AGAGTGTGCG
2341 TGCAGACAGG GACATGAGAG CCACGGGACC CTGGACTACC AGACCCTGAA CCTCTGTCCC
2401 CCTGGAAAGA CTTGTGTGGC CGGCCGAGAA CAAGCAACTC CATGCAGGCC ACCAGATCAC
2461 TCTACAAACC AAGCTCAGGA ACCTGGTGTT AAAAAAGTAC GTCAGCAAAA TAAGGTAGTC
2521 AAGAAAAGAA ATTCTAAACT ATCAGCTATA GGATTTGAAG AATTTGAAGA CCAGGACTGG
2581 GAGGGAAATT AAAAGCTGGA ATCATATGCA TTATGTTGCA AACTCTGTTG AAAGGAAACT

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2641 TTATTTCTTA AAGAAAGGTG TATCTGTTCT GTTAACTTCT GAAAAACAGA GGGAGAGATT
2701 CAGTGGTCAT TGGAATACAG GCATGTAATC AACTTTGAGA CTCAGCATGC TTGAACAAGA
2761 GCACAGGCGT GTATTTGATG ACAGTTAAGC CTGGTTGGGG CGGGGGGCAC ATATTTTATG
2821 TCAAAACTCA AAGCAATCAT TGGAACACAT TTGACTATTT TTGGACAGTA CTCAAGTAGC
2881 AAAGATAAGG TTAGCTTTTT TCTTTCTTTA AATTATTACA TAAARCTTAT TTCAAATAAA
2941 TACAACCTTG TTAGTGGGTT GTACAATATT GAGGATCTGA TTCTTTTATA TGTTAGAATA
3001 TACAGTTAAA AGATTATCAT TTGGGCCAGA GAGATAGCTA AGTGGTTAAG AGTATATACT
3061 GCTCTTCCAG AAGCCCTGGG TTTACCGTCC CAACAGCCAC ATTGACTGGC TCACACACAC
3121 CTGTAAGTCA GGCTCCAGAG AACAAACACC CTCCTCTGGC CTTTGTACCC ACGTGCACAT
3181 AACCAGAAAC AGACACACCC ACGCTATTTT TTTAGAAGTC ATTGATTTTT TTAATTAGGG
3241 GTGGA AAAAC AGGCTGGAGA GATGACTCCG TGGTTAAGAA CAGTTGTTGT TCTTCCAGAG
3301 GACCCAGGTT CAGTCCCGAG AACCCACAAG GCNAGTCTCC CAACTATTCA TAATTCTAGT
3361 TCAAGTGGAT CCAGCACCTT CTTCTAATG ATACTGCCAG TACCAGGCAG CCATGTGGTG
3421 CATATGCATT TGGGCAGGTA AAACACTCAG ACACGCAAAA AATTTTAAAT CTAAATTTTG
3481 AAAATATTTT AGTTTTAAGG ATGATCACTG TGTGAGGGTC AGGTCTCTTA TGTATGAATG
3541 TAGTACCAAG AACTGTGATG AGTATATGTA TGCTCCATTC TATAGTCTCC TCTCTCTCTC
3601 TCTCTCTCTC TCTCTCTCTC TCTCTCTCTC TCTCTGGAAT TCCGGAATTC CGGAATTCCG
3661 GAATTCGG
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**SEQ ID NO: 9      Mouse IPM 150 amino acid sequence, isoform A**

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1 MNFQIKHAIF VFGIFLQVQG IKDTSIKIFS SEIKNIDKTP RIETIESTST VHKVSTMKRI
61 FDLPLKLRTR SALFPAANIC PQESLRQILA SLQEYYRLRV CQEVVWEAYR IFLDRIPDTE
121 EYQDWVSLCQ KETFCLFDIG KNFSNSQEH DLQRIKQR SFPGRKDETA SMETLEAPTE
181 APVVPTDVSRL MSLGPFPLPS DDTDLKEILS VTLKDIQKPT TESKTEPIHV SEFSSEEKVE
241 FSIISLPNHRF KAELTNSGSP YYQELVGQSQ LQLQKIFKKL PGFGEIRVLG FRPKKEEDGS
301 SSTEIQLMAI FKRDHAEAKS PDSHLLSLDS NKIESERIHG GVIDEKQPET YLTATDLKKL
361 IIQLLDGDL LVEGKIPFGD EVTGTLFRPV TEPDLPKPLA DVTEDATLSP ELPFVEPRLE
421 AVDREGSELP GMSSKDSSWS PPVSASISRS ENLPSFTPSI FSLDAQSPPP LMTTGPTALI
481 PKPTLPTIDY STIRQLPLES SHWPASSSDR ELITSSHDTI RDLGMDVSD TPALSEISEL
541 SGYDSASGQF LEMTTPIPTV RFITTSSETI ATKGQELVVF FSLRVANMPF SYDLFNKSSL
601 EYQALEQRFT DLLVPYLRN LTGFKQLEIL SFRNGSVIVN SKVRFAKAVP YNLTQAVRGV
661 LEDLRSTAAQ GLNLEIESYS LDIEPADQAD PCKLLDCGKF AQCCKNEWTE EAECRCRQGH
721 ESHGTLDYQT LNLCPGKTC VAGREQATPC RPPDHSTNQA QEPGVKKLRQ QNKVVKKRNS
781 KLSAIGFEFF EDQDWEGN
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**SEQ ID NO:10      Mouse IPM 150 cDNA sequence, isoform D**

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1 GGCTTTAAAC CAGGGAGGTC GTCTGTACTC AGCCGGCACC TGGATTTGAT TATTTTTCAT
61 ATTTCACTCA CCTATTCTT TTAAGTGTGA CTTGGTATTG TTCTGTGATT TTTCAGAATT
121 ACCAGTATAC AGAACCAGAA TGAATTTTCA AATTAACAT GCTATCTTTG TTTTGGGAT
181 TTTTCTCCAA GTTCAAGGAA TCAAAGTATG TCAAGAAGTC GTGTGGGAAG CATATCGTAT
241 CTTTCTGGAC CGAATTCCTG ACACAGAGGA ATATCAAGAC TGGGTCAGCC TCTGCCAGAA
301 AGAAACCTTC TGCCTCTTTG ACATTGGGAA AAACCTCAGC AACTCCAGG AGCACCTAGA
361 TCTTCTTCAG CAGAGAATAA AACAGAGAAG CTTCCCTGGG AGGAAAGATG AGACAGCCTC
421 CATGGAGACA CTGGAAGCAC CTAAGTAAAG CCCTGTGGTA CCCACAGATG TTTCCAGGAT
481 GTCCCTGGGG CCATTCCCAC TTCCTTCTGA TGACACAGAC CTCAAGGAGA TTCTCAGTGT
541 CACCCTCAAG GACATTCAAA AGCCCAACAAC AGAAAGTATA ACAGAACCTA TTCACGTGTC
601 TGAATTCTCA TCAGAGGAGA AGGTGGAGTT CAGCATCTCT CTGCCAAACC ACAGGTTCAA
661 GGCAGAGCTC ACCAACTCTG GGTCACCATG CTACCAGGAA CTGGTGGGAC AGTCCCAACT
721 GCAGTTGCAA AAGATATTTA AGAAACTTCC AGGATTTCGA GAAATCCGTG TATTAGGATT
781 TAGACCAAAG AAAGAAGAAG ATGGTTCAAG CTCCACAGAA ATACAGCTTA TGGCCATCTT
841 TAAGAGGGAC CATGCAGAAG CAAAAAGCCC TGATAGTCAT CTAAGTCTCT TTGATTCCAA
901 CAAAATTGAA AGTGAAAGAA TCCATCATGG AGTCATAGAA GACAAACAAC CAGAAACCTA

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961 CCTCACAGCT ACAGACCTCA AAAAATCAT CATACTACTA CTAGATGGAG ACCTGTCCTT  
 1021 GGTAGAAGGG AAAATTCCAT TCGGTGATGA AGTTACTGGG AACTCTTCA GACCTGTCAC  
 1081 TGAACCATG CTGCCCCAGC CCCTTGCTGA TGTACAGAG GATGCCACTT TGAGTCCAGA  
 1141 ACTTCCTTTC GTTGAGCCTA GGCTTGAGGC AGTGGACAGA GAAGGATCTG AGCTGCCTGC  
 1201 TGATCAGGCG GATCCCTGCA AACTTCTAGA CTGTGGCAAA TTTGCCAGT GTGTAAAGAA  
 1261 TGAGTGGACA GAGGAAGCAG AGTGTGCTG CAGACAGGGA CATGAGAGCC ACGGGACCTT  
 1321 GGAATACAG ACCCTGAACC TCTGTCCCC TGGAAAGACT TGTGTGGCCG GCCGAGAACA  
 1381 AGCAACTCCA TGCAGGCCAA CAGATCACTC TACAAACCAA GCTCAGGAAC CTGGTGTTAA  
 1441 AAAGCTACGT CAGCAAAATA AGGTAGTCAA GAAAAGAAAT TCTAACTAT CAGCTATAGG  
 1501 ATTTGAAGAA TTTGAAGACC AGGACTGGGA GGGAAATTAA AAGCTGGAAT CATATGCATT  
 1561 ATGTTGCAAA CTCTGTTGAA AGGAACTTT ATTTCTTAA GAAAGGTGTA TCTGTTCTGT  
 1621 TAATCTCTGA AAAACAGAGG GAGAGATTCA GTGGTCATTG GAATACAGGC ATGTAATCAA  
 1681 CTTTGAGACT CAGCATGCTT GAACAAGAGC ACAGGCGTGT ATTTGA

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### SEQ ID NO:11 Mouse IPM 150 amino acid sequence, isoform D

1 MNFQIKHAIF VFGIFLQVQG IKVCQEVVWE AYRIFLDRIP DTEFYQDWVS LCQKETFCFLF  
 61 DIGKNFSNSQ EHLDLLQORI KQRSFPGRKD ETASMETLEA PTEAPVVPTD VSRMSLGPFP  
 121 LPSDDTDLKE ILSVTLKDIQ KPTTESITEP IHVSEFSSEE KVEFSISLPN HRFKAELTNS  
 181 GSPYYQELVG QSQLQLQKIF KKLPGFGEIR VLGFRPKKEE DGSSSTEIQL MAIFKRDHAE  
 241 AKSPDSHLLS LDSNKIESER IHGVEDIKQ PETYLTATDL KKLIQLLDG DLSLVEGKIP  
 301 FGDEVTGTLF RPVTEPDLPK PLADVTEAT LPELPFVEP RLEAVDREGS ELPADQADPC  
 361 KLLDCGKFAQ CVKNEWTEEA ECRCRQGHES HGTLDYQTLN LCPPGKTCVA GREQATPCRP  
 TDHSTNQAQE PGVKKLRQON KVVKKRNSKL SAIGFEFED QDWEGN

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### SEQ ID NO:12 Mouse IPM 150 cDNA sequence, isoform E

1 TCTGCAGAAT TCGGCTTAAC CAGGGAGGTC GTCTGTACTC AGCCGGCACC TGGATTTGAT  
 61 TATTTTTTCAT ATTTTCAGTCA CCTTATTTCT TTAAGTGTGA CTTGGTATTG TTCTGTGATT  
 121 TTTTCAGAATT ACCAGTATAC AGAACCAGAA TGAATTTTCA AATTAAACAT GCTATCTTTG  
 181 TTTTGGGAT TTTTCTCCAA GTTCAAGGAA TCAAAGATAC CTCTATTAAA ATATTCAGTT  
 241 CTGAAATTAA AAACATAGAC AAAACCCCAA GAATCGAAAC AATTGAAAGT ACTTCAACAG  
 301 TGCACAAAGT GTCAACCATG AAACGCCAGC CTTGTCAGAA ATATCAGAAC TGAGTGGATA  
 361 CGATTCTGCC TCGGGTCAGT TCTTGAGAT GACCACACCC ATCCCAACAG TACGGTTCAT  
 421 CACCACCAGC TCCGAGACCA TTGCCACCAA GGGCCAGGAG CTAGTGGTAT TCTTCAGCCT  
 481 GCGTGTGTGT AACATGCCGT TCTCCTATGA CCTGTTCAAC AAGAGTTCTC TGGAGTATCA  
 541 AGCCCTGGAA CAACGATTCA CAGACCTGCT GGTTCCTAT CWACGATCGA ATCTTACGGG  
 601 ATTTAAGCAA CTGGAAATAC TCAGCTTCAG AAACGGAAGT GTGATCGTGA ACAGCAAAGT  
 661 GCGGTTTGCA AAGGCGGTAC CCTACAACCT CACCCAGGCC GTGCGCGGGG TCTTGAGGA  
 721 TCTTCGGTCC ACCGCAGCTC AAGGGCTCAA TCTGGAAATC GAAAGCTACT CCCTCGACAT  
 781 TGAACCATG GATCAGGCGG ATCCCTGCAA ACTTCTAGAC TGTGGCAAAT TTGCCAGTG  
 841 TGTAAGAAT GAGTGGACAG AGGAAGCAGA GTGTCGCTGC AGACAGGGAC ATGAGAGCCA  
 901 CGGGACCCTG GACTACCAGA CCCTGAACCT CTGTCCCCCT GGAAAGACTT GTGTGGCCGG  
 961 CCGAGAACAA GCAACTCCAT GCAGGCCACC AGATCACTCT ACAAACCAAG CTCAGGAACC  
 1021 TGGTGTTAAA AAGCTACGTC AGCAAAATAA GGATGTCAG AAACGAAAT CTAACTATC  
 1081 AGCTATAGGA TTTGAAAAA TTGAAGACCA GGAAGGGAG GGAAATTAAG AGCTGGAATC  
 1141 ATATGCATTA GTTGCAAAAC TCTGTTGAAA GGAAACTTTA TTTCTTAAAG AAAGGTGTAT  
 1201 CTGTTCTGTT AACTTCTGAA AAACAGAGGG AGAGATTGAG TGGTCATTGG AATACAGGCA  
 1261 TGTAATCAAC TTTGAGACTC AGCATGCTTG AACAAGAGCA CAGGCGTGTA TTTGATAAGC  
 1321 C

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### SEQ ID NO:13 Mouse IPM 150 amino acid sequence, isoform E

1 MNFQIKHAIF VFGIFLQVQG IKDTSIKIFS SEIKNIDKTP RIETIESTST VHKVSTMKRQ  
61 PCQKYQN  
//

**SEQ ID NO:14 Monkey IPM 150 cDNA (partial)**

1 ATTTTCTTTC CGAACGGGGT TAAAGTCTGT CCACAGGAAT CCATGAAACA GATTTTAGCC  
61 AGTCTTCAAG CTTATTATAG ATTGAGAGTG TGTCAGGAAG CAGTATGGGA AGCATATCGG  
121 ATCTTTCTGG ATCGCATCCC TGACACAGGG GAATATCAGG ACTGGGTCAG CTTCTGCCAG  
181 CAGGAGACCT TCTGCCTCTT TGACATCGGA CAAAACCTCA GCAATTCCCA GGAGCACCTG  
241 GATCTTCTCC AGCAGAGAAT AAAACAGAGA AGTTTCCCTG AGAGAAAAGA TGAAGTATCT  
301 ACAGAGAAGA CATTGGGAGA GCCTAGTGAA ACCATTGTGG TTTCAACAGA TGTTGCCAGC  
361 GTCTCACTTG GGCCTTTCCC TGTCACCTCT GATGACACCC TCCTCAATGA AATTCTCGAT  
421 AATGCACTCA ACGACACCAA GATGCCTACA ACAGAAAGAG AACAGAACT CGCTGTGTCT  
481 GAGGAGCAGA GGGTGGAGCT CAGCATCTCT CTGATAAACC AGAGGTTCAA GGCAGAGCTC  
541 GCTGACTCTC AGTCA  
//

**SEQ ID NO:15 Monkey IPM 150 amino acid sequence (partial)**

1 IFFPNGVKVC PQESMKQILA SLQAYYRLRV CQEAVWEAYR IFLDRIPDTG EYQDWVSFCQ  
61 QETFLFDIG QNFSNSQEHL DLLQRIKQR SFPERKDEVS TEKTLGEPSE TIVVSTDVAS  
121 VSLGPFVPVP DDTLLNEILD NALNDTKMPT TERETELAVS EEQRVELSIS LINQRFKAEL  
181 ADSQS  
//

**SEQ ID NO:16 Human IPM 200 (isoform A) cDNA**

1 CGGGCTACTT TGAAAGGACA ACCATTTTTTC TTTCCGCTAA TTTATAATGG TTTTGAAGTG  
61 GTTGTTCATT CTCAAACATA GACTTTTTAAA TGTTAGGTCT TTCCTATAAC TCTTTGTTAT  
121 TGGAAGTTTC AAGGATTTGG AACTCAATT AAGGATTCTG TCCTCTCCTC ATTCCTTTGG  
181 TTTTGGCCCA AATGATTATG TTTCTCTTTT TTGGGAAGAT TTCTCTGGGT ATTTTGATAT  
241 TTGTCCTGAT AGAAGGAGAC TTTCCATCAT TAACAGCACA AACCTACTTA TCTATAGAGG  
301 AGATCCAAGA ACCCAAGAGT GCAGTTTCTT TTCTCCTGCC TGAAGAATCA ACAGACCTTT  
361 CTCTAGCTAC CAAAAAGAAA CAGCCTCTGG ACCGCAGAGA AACTGAAAGA CAGTGGTTAA  
421 TCAGAAGGCG GAGATCTATT CTGTTTCTTA ATGGAGTGAA AATCTGCCCA GATGAAAGTG  
481 TTGCAGAGGC TGTGGCAAAT CATGTGAAGT ATTTTAAAGT CCGAGTGTGT CAGGAAGCTG  
541 TCTGGGAAGC CTTCAGGACT TTTTGGGATC GACTTCCTGG GCGTGAGGAA TATCATTACT  
601 GGATGAATTT GTGTGAGGAT GGAGTCACAA GTATATTTGA AATGGGCACA AATTTTAGTG  
661 AATCTGTGGA ACATAGAAGC TTAATCATGA AGAAACTGAC TTATGCAAAG GAAACTGTAA  
721 GCAGCTCTGA ACTGTCTTCT CCAGTTCCTG TTGGTGATAC TTCAACATTG GGAGACACTA  
781 CTCTCAGTGT TCCACATCCA GAGGTGGACG CCTATGAAGG TGCCTCAGAG AGCAGCTTGG  
841 AAAGGCCAGA GGAGAGTATT AGCAATGAAA TTGAGAATGT GATAGAAGAA GCCACAAAAC  
901 CAGCAGGTGA ACAGATTGCA GAATTCAGTA TCCACCTTTT GGGGAAGCAG TACAGGGAAG  
961 AACTACAGGA TTCTCCAGC TTTCACCACC AGCACCTTGA AGAAGAATTT ATTTCAGAGG  
1021 TTGAAAATGC ATTTACTGGG TTACCAGGCT ACAAGGAAAT TCGTGACTTT GAATTTAGGT  
1081 CCCCCAAGGA AAATGACAGT GCGGTAGATG TTTACTATGC AGTTACCTTC AATGGTGAGG  
1141 CCATCAGCAA TACCACCTGG GACCTCATTA GCCTTCACTC CAACAAGGTG GAAAACCATG  
1201 GCCTTGTTGA ACTGGATGAT AAACCCACTG TTGTTTATAC AATCAGTAAC TTCAGAGATT  
1261 ATATTGCTGA GACATTGCAG CAGAATTTTT TGCTGGGGAA CTCTTCCTTG AATCCAGATC  
1321 CTGATTCCCT GCAGCTTATC AATGTGAGAG GAGTTTTGCG TCACCAAACCT GAAGATCTAG  
1381 TTTGGAACAC CCAAAGTTCA AGTCTTCAGG CAACGCCGTC ATCTATTCTG GATAATACCT  
1441 TTCAAGCTGC ATGGCCCTCA GCAGATGAAT CCATCACCAG CAGTATTCCA CCACTTGATT  
1501 TCAGCTCTGG TCCTCCCTCA GCCACTGGCA GGGAACTCTG GTCAGAAAGT CTTTGGGTG



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1561 ATTTAGTGTC TACACACAAA TTAGCCTTTC CCTCGAAGAT GGCCTCAGC TCTTCCCCAG
1621 AGGTTTTAGA GGTTAGCAGC TTGACTCTTC ATTCTGTCAC CCCGGCAGTG CTTCAGACTG
1681 GCTTGCTGTG GGCTTCTGAG GAAAGGACTT CTGGATCTCA CTTGGTAGAA GATGGATTAG
1741 CCAATGTTGA AGAGTCAGAA GATTTTCTTT CTATTGATTC ATTGCCTTCA AGTTCATTCA
1801 CTCAACCTGT GCCAAAAGAA ACAATACCAT CCATGGAAGA CTCTGATGTG TCCTTAACAT
1861 CTTCACCATA TCTGACCTCT TCTATACCTT TTGGCTTGGA CTCCTTGACC TCCAAAGTCA
1921 AAGACCAATT AAAAGTGAGC CCTTTCTGCT CAGATGCATC CATGGAAAAA GAGTTAATAT
1981 TTGACGGTGG TTTAGGTTCA GGGTCTGGGC AAAAGGTAGA TCTGATTACT TGGCCATGGA
2041 GTGAGACTTC ATCAGAGAAG AGCGCCGAAC CACTGTCCAA GCCGTGGCTT GAAGATGATG
2101 ATTCACTTTT GCCAGCTGAG ATTGAAGACA AGAACTAGT TTTAGTTGAC AAAATGGATT
2161 CCACAGACCA AATTAGTAAG CACTCAAAAT ATGAACATGA TGACAGATCC ACACACTTTC
2221 CAGAGGAAGA GCCTCTTAGT GGGCCTGCTG TGCCCATCTT CGCAGATACT GCAGCTGAAT
2281 CTGCGTCTCT AACCTCCTCC AAGCACATAT CAGAAGTACC TGGTGTGAT GATTGCTCAG
2341 TTACCAAAGC ACCTCTTATA CTGACATCTG TAGCAATCTC TGCCTCTACT GATAAATCAG
2401 ATCAGGCAGA TGCCATCCTA AGGGAGGATA TGGAAACAAAT TACTGAGTCA TCCAACTATG
2461 AATGGTTTGA CAGTGAGGTT TCAATGGTAA AGCCAGATAT GCAAACCTTG TGGACTATAT
2521 TGCCAGAATC AGAGAGAGTT TGGACAAGAA CTTCTTCCCT AGAGAAATTG TCCAGAGACA
2581 TATTGGCAAG TACACCACAG AGTGCTGACA GGCTCTGGTT ATCTGTGACA CAGTCTACCA
2641 AATTGCCTCC AACCACAATC TCCACCCTGC TAGAGGATGA AGTAATTATG GGTGTACAGG
2701 ATATTTCGTT AGAAGTGGAC CGGATAGGCA CAGATTACTA TCAGCCTGAG CAAGTCCAAG
2761 AGCAAAATGG CAAGGTTGGT AGTTATGTGG AAATGTCAAC AAGTGTTTAC TCCACAGAGA
2821 TGGTTAGTGT GGCTTGCCCC ACAGAAGGAG GAGATGACTT GAGTTATACC CAGACTTCAG
2881 GAGCTTTGGT GGTTTTCTTC AGCCTCCGAG TGACTAACAT GATGTTTTCA GAAGATCTGT
2941 TTAATAAAAA CTCCTTGAG TATAAAGCCC TGGAGCAAAG ATTCTTAGAA TTGCTGGTTC
3001 CCTATCTCCA GTCAAATCTC ACGGGGTTCC AGAAGTTAGA AATCCTCAAC TTCAGAAATG
3061 GCAGCATTGT GGTGAACAGT CGAATGAAGT TTGCCAATTC TGCCCTCCT AACGTCAACA
3121 ATGCGGTGTA CATGATTCTG GAAGACTTTT GTACCACTGC CTACAATACC ATGAAGTTGG
3181 CTATTGATAA ATACTCTCTT GATGTGGAAT CAGGTGATGA AGCCAACCTT TGCAAGTTTC
3241 AGGCCTGTAA TGAATTTTCA GAGTGTCTGG TCAACCCCTG GAGTGGAGAA GCAAAGTGCA
3301 GATGCTTCCC TGGATACCTG AGTGTGGAAG AACGGCCCTG TCAGAGTCTC TGTGACCTAC
3361 AGCCTGACTT CTGCTTGAAT GATGGAAAGT GTGACATTAT GCCTGGGCAC GGGGCCATTT
3421 GTAGGTGCCG GGTGGGTGAG AACTGGTGGT ACCGAGGCAA GCACTGTGAG GAATTTGTGT
3481 CTGAGCCCGT GATCATAGGC ATCACTATTG CCTCCGTGGT TGGACTTCTT GTCATCTTTT
3541 CTGCTATCAT CTACTTCTTC ATCAGGACTC TTCAAGCACA CCATGACAGG AGTGAAAGAG
3601 AGAGTCCCTT CAGTGGCTCC AGCAGGCAGC CTGACAGCCT CTCATCTATT GAGAATGCTG
3661 TGAAGTACAA CCCCGTGTAT GAAAGTCACA GGGCTGGATG TGAGAAGTAT GAGGGACCTT
3721 ATCCTCAGCA TCCCTTCTAC AGCTCTGCTA GCGGAGACGT GATTGGTGGG CTGAGCAGAG
3781 AAGAAATCAG ACAGATGTAT GAGAGCAGTG AGCTTTCCAG AGAGGAAATT CAAGAGAGAA
3841 TGAGAGTTTT GGAAGTGTAT GCCAATGATC CTGAGTTTGC AGCTTTTGTG AGAGAGCAAC
3901 AAGTGAAGA GGTTTAACCA AAATCCTGT TCTGAAACTG ATTAGAAGCC TGGAGAAGAT
3961 GGAGATTACT TGTTACTTAT GTCATATAAT TAACCTGGAT TTTAAACACT GTTGAAGAA
4021 GAGTTTTCTA TGAAAAAATT AAATATAGGG CACACTGTTT TTTTTCAGC TTAAGTTTTT
4081 AGAATGTAGT AAGAGATGTT ACCATTTTAA TTTCTATAAA GACTGAATGC TGTGTTTAAA
4141 TAAATTGAAA ACTACGTAAA AAAAAA
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# **SEQ ID NO:17      Human IPM 200 amino acid sequence, isoform A**

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1 MIMFPLFGKI SLGILIFVLI EGDFPSLTAQ TYLSIEEIQE PKSAVSFLLP EESTDLSLAT
61 KKKQPLDRRE TERQWLIRRR RSILFPNGVK ICPDESVAEA VANHVKYFKV RVCQEAVWEA
121 FRTFWDRLPG REEYHYWMNL CEDGVTSEIF MGTNFSSEVE HRSLIMKKLT YAKETVSSSE
181 LSSPVPVGDV STLGDITLSV PHPEVDAYEG ASESSLERPE ESISNEIENV IEEATKPAGE
241 QIAEFSIHLL GKQYREELQD SSSFHHQHLE EEFI SEVENA FTGLPGYKEI RVLEFRSPKE
301 NDSGVVDVYYA VTFNGEAI SN TTWDLISLHS NKVENHGLVE LDDKPTVVYT ISNFRDYIAE
361 TLQQNFLLGN SSLNPDPSL QLINVRGVL R HQTEDLVWNT QSSSLQATPS SILDNTFQAA
421 WPSADESITS SIPPLDFSSG PPSATGRELW SESPLGDLVS THKLAFPSKM GLSSSPEVLE
481 VSSLTLHSVT PAVLQTGLPV ASEERTSGSH LVEDGLANVE ESEDFLSIDS LPSSSFTQPV

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541 PKETIPSMED SDVSLTSSPY LTSSIPFGLD SLTSKVKDQL KVSFPLPDAS MEKELIFDGG
601 LGSQSGQKVD LITWPWSETS SEKSAEPLSK PWLEDDDSL PAEIEDKKLV LVDKMDSTDQ
661 ISKHSKYEH DRSTHFPEEE PLSGPAVPIF ADTAAESASL TLPKHISEVP GVDDCSVTKA
721 PLILTSVAIS ASTDKSDQAD AILREDMEQI TESSNYEWF SEVSMVKPDM QTLWTILPES
781 ERVWTRTSSL EKLSRDILAS TPQSADRLWL SVTQSTKLPP TTISTLLEDE VIMGVQDISL
841 ELDRIGTDYY QPEQVQEQNG KVGSYVEMST SVHSTEMVSV AWPTEGGDDL SYTQTS GALV
901 VFFSLRVNTM MFSEDLFNKN SLEYKALEQR FLELLVPYLQ SNLTGFQNL ILNFRNGSIV
961 VNSRMKFANS VPPNVNNNAVY MILEDFTTA YNTMNLAIK YSLDVESGDE ANPCKFQACN
1021 EFSECLVNPW SGEAKCRCFP GYLSVEERPC QSLCDLQPDF CLNDGKCDIM PGHGAICRCR
1081 VGENWYRGK HCEEVSEPV IIGITIASVV GLLVIFSAII YFFIRTLQAH HDRSERESP
1141 SGSSRQPSL SSIENAVKYN PVYESHRAGC EKYEGPYPQH PFYSSASGDV IGLSREEIR
1201 QMYESELRS EEIQERMVRL ELYANDPEFA AFVREQQVEE V
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# **SEQ ID NO:18      Human IPM 200 cDNA sequence, isoform C**

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1  AAACCTTAAGC TTGGAGTTTG GAAGTTTCAA GGATTTGGAC ACTCAATTAA GGATTCTGTC
61 CTCTCCTCAT TCCTTTGGTT TTGGCCCAAA TGATTATGTT TCCTCTTTT GGAAGATTT
121 CTCTGGGTAT TTTGATATTT GTCCTGATAG AAGGAGACTT TCCATCATT ACAGACAAA
181 CCTACTTATC TATAGAGGAG ATCCAAGAAC CCAAGAGTGC AGTTTCTTT CTCCTGCCTG
241 AAGAATCAAC AGACCTTTCT CTAGCTACCA AAAAGAAACA GCCTCTGGAC CGCAGAGAAA
301 CTGAAAGACA GTGGTTAATC AGAAGGCGGA GATCTATTCT GTTTCCTAAT GGAGTGAAAA
361 TCTGCCCAGA TGAAAGTGTT GCAGAGGCTG TGGCAAATCA TGTGAAGTAT TTTAAAGTCC
421 GAGTGTGTCA GGAAGCTGTC TGGGAAGCCT TCAGGACTTT TTGGGATCSA CTTCTGGGC
481 GTGAGGAATA TCATTACTGG ATGAATTTGT GTGAGGATGG AGTCACAAGT ATATTTGAAA
541 TGGGCACAAA TTTTAGTGAA TCTGTGGAAC ATAGAAGCTT AATCATGAAG AAAGTACTT
601 ATGCAAAGGA AACTGTAAGC AGCTCTGAAC TGTCTTCTCC AGTTCCTGTT GGTGATACTT
661 CAACATTGGG AGACACTACT CTCAGTGTT CACATCCAGA GGTGGACGCC TATGAAGGTG
721 CCTCAGAGAG CAGCTTGGAA AGGCCAGAGG AGAGTATTAG CAATGAAATT GAGAATGTGA
781 TAGAAGAAGC CACAAAACCA GCAGGTGAAC AGATTGCAGA ATTCAGTATC CACCTTTTGG
841 GGAAGCAGTA CAGGGAAGAA CTACAGGATT CCTCCAGCTT TCACCACCAG CACCTTGAAG
901 AAGAATTTAT TTCAGAGGTT GAAAATGCAT TTACTGGGTT ACCAGGCTAC AAGGAAATTC
961 GTGTACTTGA ATTTAGGTCC CCAAAGGAAA ATGACAGTGG CGTAGATGTT TACTATGCAG
1021 TTACCTTCAA TGGTGAGGCC ATCAGCAATA CCACCTGGGA CCTCATTAGC CTTCACTCCA
1081 ACAAGGTGGA AAACCATGGC CTTGTGGAAC TGGATGATAA ACCCACTGTT GTTTATACAA
1141 TCAGTAACTT CAGAGATTAT ATTGCTGAGA CATTGCAGCA GAATTTTTTG CTGGGGAAGT
1201 CTTCTTGAA TCCAGATCCT GATTCCCTGC AGCTTATCAA TGTGAGAGGA GTTTTGCCTC
1261 ACCAACTGA AGATCTAGTT TGGAACACCC AAAGTTCAAG TCTTCAGGCA ACGCCGTCAT
1321 CTATTCTGTG CTTCACTGCT GCTTGCTGTG GGCTTCTGAG GAAAGGACTT CTGGATCTCA
1381 CTTGGTAGAA GATGGATTAG CCAATGTTGA AGAGTCAGAA GATTTTCTTT CTATTGATTC
1441 ATTGCCTTCA AGTTCATTCA CTCACCTGT GCCAAAAGAA ACAATACCAT CCATGGAAGA
1501 CTCTGATGTG TCCTTAACAT CTTCAACATA TCTGACCTCT TCTATACCTT TTGGCTTGGA
1561 CTCCTTGACC TCCAAAGTCA AAGACCAATT AAAAGTGAGC CCTTCTCTGC CAGATGCATC
1621 CATGGAAAAA GAGTTAATAT TTGACGGTGG TTTAGGTTCA GGGTCTGGGC AAAAGGTAGA
1681 TCTGATTACT TGGCCATGGA GTGAGACTTC ATCAGAGAAG AGCGCTGAAC CACTGTCCAA
1741 GCCGTGGCTT GAAGATGATG ATTCACTTTT GCCAGCTGAG ATTGAAGACA AGAACTAGT
1801 TTTAGTTGAC AAAATGGATT CCACAGACCA AATTAGTAAG CACTCAAAT ATGAACATGA
1861 TGACAGATCC ATACACTTTC CAGAGGAAGA GCCTCTTAGT GGGCCTGCTG TGCCATCTT
1921 CGCAGATACT GCAGCTGAAT CTGCGTCTCT AACCTCCCC AAGCACATAT CAGAAGTACC
1981 TGGTGTTGAT GATTACTCAG TTACCAAAGC ACCTCTTATA CTGACATCTG TAGCAATCTC
2041 TGCCTCTACT GATAAATCAG ATCAGGCAGA TGCCATCCTA AGGGAGGATA TGGAAACAAAT
2101 TACTGAGTCA TCCAATATG AATGGTTTGA CAGTGAGGTT TCAATGGTAA AGCCAGATAT
2161 GCAAACCTTG TGGACTATAT TGCCAGAATC AGAGAGAGTT TGGACAAGAA CTTCTTCCCT
2221 AGAGAAATTG TCCAGAGACA TATTGGCAAG TACACCACAG AGTGCTGACA GGCTCTGGTT
2281 ATCTGTGACA CAGTCTACCA AATTGCCTCC AACCACAATC TCCACCCTGC TAGAGGATGA
2341 AGTAATTATG GGTGTACAGG ATATTTCTGT AGAAGTGGAC CGGATAGGCA CAGATTACTA

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2401 TCAGCCTGAG CAAGTCCAAG AGCAAAATGG CAAGGTTGGT AGTTATGTGG AAATGTCAAC  
 2461 AAGTGTTTAC TCCACAGAGA TGGTTAGTGT GGCTTGCCCC ACAGAAGGAG GAGATGACTT  
 2521 GAGTTATACC CAGACTTCAG GAGCTTTGGT GGTTCCTTC AGCCTCCGAG TGAATAACAT  
 2581 GATGTTTTCA GAAGATCTGT TTAATAAAAA CTCCTTGGAG TATAAAGCCC TGGAGCAAAG  
 2641 ATTCTTAGAA TTGCTGGTTC CCTATCTCCA GTCAAATCTC ACGGGGTTCC AGAAGCTAGA  
 2701 AATCCTCAAC TTCAGAAATG GCAGCATTGT GGTGAACAGT CGAATGAAGT TTGCCAATTC  
 2761 TGTCCCTCCT AACGTCAACA ATGCGGTGTA CATGATTCTG GAAGACTTTT GTACCACTGC  
 2821 CTACAATACC ATGAAGTTGG CTATTGATAA ATACTCTCTT GATGTGGAAT CAGGTGATGA  
 2881 AGCCAACCCCT TGCAAGTTTC AGGCCTGTAA TGAATTTTCA GAAGTGTCTG GTCAACCCCT  
 2941 GGAGTGGAGA AACAAAAGTG CAGA  
 //

**SEQ ID NO:19 Human IPM 200 amino acid sequence, isoform C**

1 MIMFPLFGKI SLGILIFVLI EGDFFSLTAQ TYLSIEEIQE PKSAVSFLLP EESTDLSLAT  
 61 KKKQPLDRRE TERQWLIRRR RSILFPNGVK ICPDESVAEA VANHVKYFKV RVCQEAVWEA  
 121 FRTFWDXLPG REEYHYWMNL CEDGVTSIFE MGTNFSSEVE HRSLIMKKLT YAKETVSSSE  
 181 LSSPVPVGDG STLGDTTLSV PHPEVDAYEG ASESSLERPE ESISNEIENV IEEATKPAGE  
 241 QIAEFSIHLL GKQYREELQD SSSFHHQHLE EEFISEVENA FTGLPGYKEI RVLEFRSPKE  
 301 NDSGVDVYYA VTFNGEAISN TTWDLISLHS NKVENHGLVE LDDKPTVVYT ISNFRDYIAE  
 361 TLQQNFLLGN SSLNPDPSL QLINVGRVLR HQTEDLVWNT QSSSLQATPS SILCFXLACL  
 421 WLLRKGLLDL TW  
 //

**SEQ ID NO:20 Human IPM 200 cDNA sequence, isoform F**

1 TGGAAAGTTTC AAGGATTTGG ACACTCAATT AAGGATTCTG TCCTCTCCTC ATTCCTTTGG  
 61 TTTTGGCCCA AATGATTATG TTTCTCTTTT TTGGGAAGAT TTCTCTGGGT ATTTTGATAT  
 121 TTGTCCTGAT AGAAGGAGAC TTTCCATCAT TAACAGCACA AACCTACTTA TCTATAGAGG  
 181 AGATCCAAGC ACTGTGAGGA ATTTGTGTCT GAGCCCGTGA TCATAGGCAT CACTATTGCC  
 241 TCCGTGGTTG GACTTCTTGT CATCTTTTCT GCTATCATCT ACTTCTTCAT CAGGACTCTT  
 301 CAAGCACACC ATGACAGGAG TGAAAGAGAG AGTCCCTTCA GTGGCTCCAG CAGGCAGCCT  
 361 GACAGCCTCT CATCTATTGA GAATGCTGTG AAGTACAACC CCGTGTATGA AAGTCACAGG  
 421 GCTGGATGTG AGAAGTATGA GGGACCCTAT CCTCAGCATC CTTCTACAG CTCTGCTAGC  
 481 GGAGACGTGA TTGGTGGGCT GAGCAGAGAA GAAATCAGAC AGATGTATGA GAGCAGTGAG  
 541 CTTTCCAGAG AGGAAATTCA AGAGAGAATG AGAGTTTTGG AACTGTATGC CAATGATCCT  
 601 GAGTTTGCAG CTTTGTGAG AGAGCAACAA GTGGAAGAGG TTTAACCAA ACTCCTGTTC  
 661 TGAAACTGAT TAGAAGCCTG GAGAAGATGG AGATTACTTG TTAATTATGT CATATAATTA  
 721 ACCTGGATTT TAAACACTGT TGGAAGAAGA GTTTTCTATG AAAAAATTAA ATATAGGGCA  
 781 CACTGTTTTT TTTTCAGCTT AAGTTTTTCAG AATGTAGTAA GAGATGTTAC CATTTTTATT  
 841 TCTATAAAGA CTGAATGCTG T

**SEQ ID NO:21 Human IPM 200 amino acid sequence, isoform F**

1 MIMFPLFGKI SLGILIFVLI EGDFFSLTAQ TYLSIEEIQE L  
 //

**SEQ ID NO:22 Human IPM 200, regulatory region**

1 GAACACTTGT AATACAAAAC AATTCCTATT TACAAAGTTT ACTGGTAATA CAAATACAGT  
 61 AGTTTACAGA GAACTTTCAT GTCTCTTAAT TCTTAACAAC GACCCTGTGA TACAGGTAGA  
 121 GATTATCACA TGTAATTTCT TTGGTGAGTA AACCGGCTCA AAGAGCTTAG GTTATTTACC  
 181 AAAATCAAAT ATTAAGTGAT AAAACCAAGA TTTGAGTCCA GGGTTTCTCA ATCTTAAATA

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241 CAGGAATCTT TCTAGATTAC TATGATTCTC AGAAGTTTTT TTTAGCTTTT TGGTCAAGGC
301 TGTCAAAAAAG AATAATTGCC AACTTAATAT TTGTTACCTA AGAGTTGTCC CTTGTTCTGA
361 ATTGTCAATA TGAAGCTTTT CTTAAGATTA AACTTTGACT CAGCTAATAA AATTTTCGGC
421 TTTTCTCTCC TACTCATACA ATAAATTTGG CAAGTAAGTT TCTTATAAGC TTACCAGTAT
481 TTTGCAAATA CAACTATGCA AATATATTTA ATGGTCATTT AGGTTTATTA GCTTTTATAA
541 AGGCTGAAAA TGTGGTTTAT TTGAGGCTGT ATTGAAAAAA TATACTTGAG CTTTTCTTAA
601 AGCATAAAAT AACATTGAGG GTGATTTAGC TAACACAATT AGTCAAGGAT TCTCAAGAGG
661 AATGTGGTTT AGATCTTTAC AATACACTTT TTTTCAGAGA ATTTTGCCAG AGATAACATG
721 AAATAAAATA TAATTTTCATT GCTATTTGAT AGTAAATCCA AGCTTCCACA GGGATTCTGA
781 TGAATTGCTT TCTACTAGGT TTACTTGATT TAAAAAACTG TTCTAATATA GAGAATTTCA
841 TCTGCAGGGA AAATGTTTTT TTGGTTAAGA GTTCCTCATG TAGATAAACA CACTGGGCCT
901 CACATTTAAT GGCAAATTA GCAACAAAGT TATCGCACAG CTATCATTTA TATTAAGTGC
961 TTAATATGTT CCGGGCACTA CATTAGCTCT ACCATGAGTT TACTATTTCT ATTCCATTTT ATACGTAAGG
1021 TTAATCCTCA CATTAGCTCT ACCATGAGTT TACTATTTCT ATTCCATTTT ATACGTAAGG
1081 AAGGAGACAA AGTAAGTGAT TTTTCTATCA AGGAAGGAAA TTTGCAAGAG AATAGTTTCA
1141 TTACAAAAAC TAAATTTGTA CGTAGCTCTG TATTATTGAA ATAGGTAGAT ATAGTCAGTC
1201 TGGACTTTTT ATGCTTATAC ATCTTAGTCC CTAGGAAAAC CCAGAACTAA CAGATTCAGA
1261 AAAGTTGGAA AAATCAGTGA ATTATATGTG AAACACATTA TTCTTAGTGG ACTGCTTGTT
1321 AAAGGCAAGG AGAGTGTTAG TAAAGAGCTT AGGTAGATTA GAATAAAGAA ATTGTCTCTC
1381 TCCATCTGCT CTAATTAGCT TATCTCACCA GCTTTTATAG CATGCTGGTT ATTTAGAAA
1441 AGAAGTGAGA GCTACTTTGA AAGGACAACC ATTTTCTTTT CCGCTAATTT ATAATGGTTT
1501 TGAAGTGGTT GTTCATTCTC AAACATAGAC TTTTAAATGT TAGGTCTTTC CTATAACTCT
1561 TTGTTATTGG AAGTTTCAAG GATTTGGACA CTCAATTAAG GATTCTGTCC TCTCCTCATT
1621 CCTTTGGTTT TGGCCCAAAT GATTATGTTT CCTCTTTTGG GGAAGATTTT TCTGGGTATT
1681 TTGATATTTG TCCTGATAGA AGGAGACTTT CCATCATTAA CAGGTATTTA AAAATCTACA
1741 TTTGTTTGTA TCTTCCATA TCTGTAGTAT ATGTTCTTCA AAAATAGGAT TATTTGATGT
1801 GATTGCTGTA AGAAATGGAA TCAAATACTT TATTAATCTT TGATATGGCT TCATTTAAAC
1861 CGTTTTAAAA TATCTCCCAA TAATTTTGGT TTTCCCTCAT TAGTAATTTT TGGTTTAAAC
1921 CTTACTTTTA TTTATTTTGT TGAAATGGA TGTGTATTTA CTTGATTTTG ATAACAATCT
1981 TGAATGAAAG GAGTGGGAGT TAAATGGAAA AAGATGGACT GCCTCACTCC TCTTTTCCTT
2041 AGATATGCAT GCCTGCCAT GATTTGGGCA CTGGCTTCTC TATCTTAATG TAGCCCAAGT
2101 GTCAGTTTTT CTTTAGTTGT TACCTTTTGT ACTGTATCTT CATTATCGAA GACTTGACTA
2161 TACTTTCACT CTGTAGCACA AACCTACTTA TCTATAGAGG AGATCCAAGA ACCCAAGAGT
2221 GCAGTTTCTT TTCTCCTGCC TGAAGAATCA ACAGACCTTT CTCTAGCTAC CAAAAAGAAA
2281 CAGCCTCTGG ACCGCAGAGA AACTGAAAGA CAGTGGTTAA TCAGAAGGCG GAGATCTATT
2341 CTGTTTCCTA ATGGAGTGAA AATCTGCCCC GATGAAAGTG TTGCAGAGGC TGTGGCAAAT
2401 CATGTGAAGT ATTTTAAAGT CCGAGGTAAG CGAACATCCA AATCCTTCAG CTCCATAATG
2461 AAATTCAAAC ATAGTTTAAT CATTGTTTAG GTAACATTGT AAATCAAAAT TTATGATAAT
2521 TTAGACAGGA CTGAGCCAAA ACTACCTTTC TACTGTTAAG AATATAGTGT TAATGGTAAC
2581 TTCAGAGAAC AGTTTACATT AAGAGAGGAG GTTTGTTTTT TTTCCAGTGC CCTCCAGTTA
2641 AGGCAATAAT ATCATTTAAT AATGACATGC ACTTTGAACC AAAGGAAGAA CGCTTTTCATG
2701 ATTTGAGTTT GTAGCTTTTG GTGCGTTATG TAAGAACTT TTTTCACATG AGGGCAGTCA
2761 CAATAAGATG TCTTTCATTA ATTTCAACAA CATATTCAGA GAGGAAATGT CTTAAATCTT
2821 TTTAAGCACT TCAAAAATAC CAGTTTATGT TTTGGGCTAC ATTAATTTTA ATTTTACTT
2881 CTTCAATTACA GTAAATGCCT AAGTWTACCG ACAAATAGC TTTACCAAAG NTATACTCAC
2941 CTGCTTGCCT ATTTAATTAA TAGTTATTAT ATATACAAAT ATAATGTTTC TATATTTTAT
3001 AGTTTAGATA T
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## SEQ ID NO:23

## Mouse IPM 200 cDNA sequence (partial)

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1 CCGTGGCAAA CCATGTGAAG TATTTTAAAG CCCGAGTGTG CCAGGAAGCC ATCTGGGAAG
61 CCTTCAGGAC GTTTTGGGAT CGACTTCCTG GCGTGATGA ATATCGTCAC TGGATGAATT
121 TATGTGAGGA TGGAGTCACA AGTGTATTTG AAATGGGCGC CCATTTTAGT CAGTCTGTGG
181 AACATAGAAA CCTAATCATG AAGAACTGG CTTACACAAG GGAAGCTGAG AGCAGCTCCT
241 GCAAGGATCA GTCCTGTGGG CCTGAGTTGT CCTTCCAGT TCCTATTGGT GAGACCTCAA
301 CACTGACAGG TGCTGTCTCC AGTGCTTCCT ATCCAGGGTT GGCTTCGGAG AGCAGCGCAG

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361 CGTCACCGCA GGAGAGTATC AGCAATGAAA TTGAGAATGT GACAGAGGAG CCCACACAAC  
421 CAGCTGCTGA ACAGATTGCG GAATTCAGCA TCCAACCTCT GGGGAAGCGA TACAGTGAAG  
481 AACTGCGGGA TCCCTCCAGC GCCCTCTACC GGCTCCTCGT GGAAGAGTTT ATTTACAGAG  
541 TTGAAAAAGC ATTACACAGG TTACCTGGCT ACAAGGGCAT CCGTGTTCTG GAATTCAGGG  
601 CCCCAGGAGGA AAATGACAGT GGGATAGATG TTCACTATGC AGTTACCTTC AATGGCGAAG  
661 CCATCAGCAA TACCACCTGG GACCTCATAA GCCTTCACTC CAACAAGGTA GAAAACCATG  
721 GCCTTGATGA GATGGATGAT AAACCCACTG CTGTCTATAC AATTAGTAAC TTCAGAGATT  
781 ATATCGCTGA GACGCTGCAC CAGAACTTTT TGATGGGAAA TTCCTCTTTG AATCCAGATC  
841 CCAAGCCTCT CCAGCTCATC AATGTGAGAG GAGTTTTGCT CCCCCAAACA GAAGACATAG  
901 TTTGGAACAC CCAAAGTTCA AGTCTTCAGG TGACAACATC CTCTATTTTN GTGCTTCAGC  
961 CTGACCTGCC TGTGGCTCCT GAGGGAAGGA CTTCTGGATC GTTCATATTA GAAGATGGGT  
1021 TAGCCAGCAC TGAAGAATTA GAAGATACTT CTATTGATGG ATTGCCTTCA AGCCCATTA  
1081 TTCAACCTGT GCCAAAAGAA ACAGTACCAC CTATGGAAGA CTCTGACACG GCTCTCTTGT  
1141 CCACACCACA TCTGACCTCT TCTGCTATAG AAGACCTTAC TAAAGACATA GGGACACCTT  
1201 CTGGCTTGGA GTCCTTGGCT TCAAACATCT CAGACCAGTT GGAAGTGATC CCATGGTTTC  
1261 CAGACACCTC TGTGGAAAAA GACTTCATTT TTGAAAGTGG CTTGGGTTCT GGGTCTGGGA  
1321 AAGATGTAGA TGTGATTGAT TGGCCATGGA GTGAGACTTC ATTAGAGAAG ACCACTAAAC  
1381 CACTGTCAAA GTCATGGTCT GAAGAACAGG ATGCACTATT ACCAACTGAG GGTAGAGAAA  
1441 AATTACATAT AGATGGCAGA GTAGATTCCA CAGAACAAAT TATTGAATCA TCAGAACATA  
1501 GATTGGAGA TAGGCCATA CATTTTATAG AGGAAGANTC CCATGTTAGA TCTATATAC  
1561 CCATCTTTGT AGAGTCCGCA ACTCCACCTA CATCTCCAAT CTTTTCAAAA CACACTTCAG  
1621 ATGTACCAGA CATTGATTCT TACTACTTTA CCAAACCACC CTTCTTACCG GTAACATAG  
1681 CAATCCCTGC TTCCACTAAG AAAACAGATG AGGTACTCAA GGAAGATATG GTACATACAG  
1741 AATCATCCAG TCACAAAGAA CTTGACAGTG AGGTTCCAGT GTCAAGGCCA GATATGCAGC  
1801 CTGTGTGGAC CATGTTGCCA GAATCAGATA CAGTTTGGAC AAGAACTTCT TCCTTAGGGA  
1861 AATTGTCCAG AGACACATTG GCAAGTACAC CAGAGAGCAC TGACAGACTC TGGTTGAAAAG  
1921 CTTCCATGAC ACAGTCCACT GAATTGCCTT CAACCACCCA CTCCACCCAG CTAGAGGAGG  
1981 AAGTAATAAT GCGGTCCAG GATATTTTAT TAGAAGTAGA TCAGGTAGGC ACAGATTATT  
2041 ATCAGTCCGA GCTAACTGAA GAACAACATG GCAAGGCTGA CAGCTATGTG GAAATGTCTA  
2101 CCAGTGTTCA CTACACAGAG ATGCCTATTG TGGCTCTGCC CACAAAAGGA GGTGTTCTGA  
2161 GTCACACCCAG ACTGCAGGAG CATTGGTGGT TTTCTTCAGC CTCCGCGTGA CAAACATGT  
2221 TGTTTTAGAA GACTTGTTTA AAAAAAATC TTTGGAATAT AAAGCCCTGG AACAAAGAT  
2281 TCTTAGAACTG CTGGCTCCCT ATCTCCAGTC AAATCTGTCA GGGTTCCAGA ACCTAGAAA  
2341 TCCTGAGTTTC AGAAACGGCA GCATTGTGGT GAACAGCCGA GTGAGGTTCC CCGAGTCTG  
2401 CCCCTCCTAAT GTCAACAAGG CCATGTATAG GATTCTGGAA GACTTTTGTA CCACTGCCT  
2461 ACCAAACCATG AACTTGGATA TCGATAAGTA CTCCCTGGAC GTGGAATCAG GTGATGAGG  
2521 CCAACCCCTGC AAGTTTCAGG CCGTAATGA ATTTTCTGAG TGTTTGGTAA ATCCATGGA  
2581 GTGGAGAAGCA AAGTGCAAT GCTACCCTGG GTACCTGAGT GTGGATGAAC TGCCTTGTC  
2641 AAAGTCTCTGT GATCTACAGC CTGACTTCTG CTTGAACGAT GGAAAGTGTG ACATTATGC  
2701 CTGGGCATGGA GCCATTTGTA GATGCCGGT TGGTTCAAAC TGGTGGTATC GAGGCCAAC  
2761 ACTGTGAGGAG TTTGTGTCTG AGCCCTTTGT CATAGGCATC ACTATAGCCT CTGTGGTTA  
2821 GCTTTCTCCTT GTTGCTTCTG CTGTCGTCTT CTTCTTGTG AAGATGCTTC AAGCTCAGA  
2881 ATGTCAGGAGA GAAAGGCAGA GGCCACCAG CTCCAGCAGG CACCCTGACA GTCTGTCAT  
2941 CTGTTGAGAA GCTATGAAGT ATAACCTTGC ATATGAGAGC CACTTGGCTG GATGTGAAC  
3001 TGTATAGAAA TCCTATAGCC AACATCCCTT CTATAGCTCT GCTAGTGAAG AGTGATTG  
3061 GTGGTCTGAGC AGAGAAGAAA TCAGACAGAT GTATGAAAGT AGCGACCTTT CCAAAGAGG  
3121 AAATTCAAGAG AGAATGAGGA TTTTGGAACT CTATGCTAAT GATCCTGAGT TTGCAGCTT  
3181 TTGTGAGAGAG CATCAAATGG AGGAGCTTTA ACTTAAATGC CTGATTCTTG ACACCAATC  
3241 AGAAGCTTGGA GAAGATGGAG AAGGCTTGTT CTCTCTGCTG TTTAACTAAT CCAGAAGAA  
3301 GAGTTTGTATT GAAGAATAAA TAAGGAAACA TGGGACGCAC TTCTCATTCC AACACTGCA  
3361 GCTTAATTTTT TGGAATGGAG CAAAAAATA ATAAGTGATG TATTTTATTT CTTACATTA  
3421 AGAGATGTGTC AAAAGAAAAT TAAAGTGGTG TGAAGTCTGA TTTTGTAACA TATTCTAAA  
3481 AGCAAAACAAAT AAAACAGAAC CAAACCAAAA GCTTAAAGCC AGACCTTGGA TTTGGGGCT  
3541 GCAGTGCCTCT GACTCTGACT TTTTGAGAGC ATCTCTAAGA ACTATGGCCC AGGCTTTCT  
3601 AGTAAGAACAT AAAGTGAGAC TAATGAGTAA AGCTTAGAAT GCGACTGTTT TGTGACATA  
3661 CTCGTTAAAGT CGAATGAGAT AGAGGAAGCT TTGAAGTAAT TTTAATATAG TTTAAACTC  
3721 AAACACTCATC TAAATAAAAA TTAGGCTTTT GGAACAGATT GCTGAGTCAG GCAATCTTT

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3781 AGGTGCAGTAT ATCTTGTTTA TGTGTTGATGC TTGCTTCCTA TCTGTTCTTG AGCTTCTTG
3841 AGCCCATAGAT CAAGACTACA ATGCTCTTAA ATTAGTTATG TCAATATTTG CCACAGTTT
3901 GGTCTCAATT AGGCACCCTT AAGAGGAAGC AAATTGAGGA ATTNCNNTTC ATCAGCTTG
3961 GTTTGTGGACA TACCAAGTGGG CCTTTTCTT GATTATTAAT TGATGTAGAA AGGCCAGC
4021 TCACTATGGGT GGTACTATCC TTAGGCAGGG GTTGGGGAG TTAAGTTGCA AAAGAAAGG
4081 TAAAGCCAGCT ACAAGAAGCC AGCCAATAAG CACTTTCCTT TGTGGTTTCT TCTTCAAAC
4141 TCCTGTCTTGG CTTCTCTCTA TGGTAGACTA TAACCTATAA GCCAAATAAA CTCTTCTT
4201 GGAA
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# **SEQ ID NO:24      Mouse IPM 200 amino acid sequence (partial)**

LOCUS            MOUSE IPM 200      1069 AA      PROT  
DEFINITION      Mus musculus IPM 200 core protein, lacks NH-terminus  
KEYWORDS        -  
FEATURES        From   To      Definition

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1  VANHVKYFKA RVCQEAIWEA FRTFWDR LPG RDEYRHWML CEDGVTSVFE MGAHFSQSVE
61  HRNLIMKKLA YTREAESSSC KDQSCGPELS FPVPIGETST LTGAVSSASY PGLASESSAA
121 SPQESISNEI ENVTEEPTQP AAEQIAEFSI QLLGKRYSEE LRDPSALYR LLVEEFISEV
181 EKAFTGLPGY KGIRVLEFRA PEENDSGIDV HYAVTFNGEA ISNTTWDLIS LHSNKVENHG
241 LVEMDDKPTA VYTISNFRDY IAETLHQNFL MGNSSLNPD KPLQLINVRG VLLPQTEDIV
301 WNTQSSSLQV TTSSIXVLQP DLPVAPEGRT SGSFILEDGL ASTEELEDTS IDGLPSSPLI
361 QPVPKETVPP MEDSDTALLS TPHLTSSAIE DLT KDIGTPS GLESLASNIS DQLEVIPWFP
421 DTSVEKDFIF ESGLGSGSGK DVDVIDWPWS ETSLEKTTKP LSKSWSEEQD ALLPTEGREK
481 LHIDGRVDST EQIESSEHR YGDRPIHFIE EXSHVRSTIP IFVESATPPT SPIFSKHTSD
541 VPDIDSYSLT KPPFLPV TIA IPASTKKTDE VLKEDMVHTE SSSHKELDSE VPVSRPDMQP
601 VWTMLPESDT VWTRTSSLGK LSRDTLASTP ESTDRLWLKA SMTQSTELPS TTHSTQLEEE
661 VIMAVQDISL ELDQVGT DYY QSELTEE QHG KADSYVEMST SVHYTEMPIV ALPTKGGVLS
721 HTQTAGALVV FFSLRVTNML FSEDLFNKNS LEYKALEQRF LELLAPYLQS NLSGFQNL EI
781 LSFRRNGSIVV NSRVRF AESA PPNV NKAMYR ILED FCTTAY QTMNLDIDKY SLDVESGDEA
841 NPCKFQACNE FSECLVNPWS GEAKCKCYPG YLSVDELPCQ SLCDLQPDFC LNDGKCDIMP
901 GHGAICRCRV GSNWWYRGQH CEEFVSEPFV IGITIASVVS FLLVASAVVF FLVKMLQAQN
961 VRRERQRPTS SSRHPDSLSS VENAMKYNPA YESHLAGCEL YEKSYSQHPF YSSASEEVIG
1021 GLSREEIRQM YESSDLSKEE IQERMRIEL YANDPEFAAF VREHQMEEL
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# **SEQ ID NO:25      Monkey IPM 200 cDNA sequence (partial)**

LOCUS            MONKEY IPM      546 BP SS-DNA            SYN            05-OCT-1998  
DEFINITION      Macaca fascicularis IPM 200 cDNA, 5' end  
ACCESSION        -  
KEYWORDS        -  
FEATURES        From   To      Definition  
ORF              188    546      IPM 200

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1  GAATTCGGCT TGGACAACCA TTTTCTTTC CGCTAATTTA TAATGGTTTT GAAGTGGTTG
61  TTCATTCTCA AACATAGACT TTAAATGTT AGGTCTTTC TATACTTGT TGTTATTGGA
121 AGTTTCAAGG ATTTGGACGC TCAGTTAAGG ATTTTGTCTT CTCCTCATTC CTTTGGTTTT
181 GGCCCAAATG ATTATGTTTC CTCTTTTGG GAAGATTTCT CTGGGTATTG TGATATTTGT
241 CCTGATAGGA GACTTTCCAT CGTTAACAGC ACAAACCTAC TTATCTTTAG AGGAGATCCA
301 AGAACCCAAG AGTGCAGTTT CTTTCTCCT GCCTGAAGAA TCAACAGACC TTTCTCTAGC
361 TACCAAAAAG AACAGCCTC TGGACCTCAG AGAAACTGAA AGACAGTGGT TACTCAGAAG
421 GCGGAGATCT ATTCTGTTTC CTAATGGAGT AAAAATCTGC CCAGATGAAA GTGTTACAGA
481 GGCTGTGGCA AATCATGTGA AGTATTTTAA AGTCCGAGTG TGTCAGGAAG CTGTCTGGGA
541 AAAGCC

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**SEQ ID NO:26** Monkey IPM 200 amino acid sequence (partial)

LOCUS MONKEY IPM 119 AA PROT SYN 16-OCT-1998  
DEFINITION Macaca fascicularis IPM 200 core protein, NH-terminal fragment  
ACCESSION -  
KEYWORDS -  
FEATURES From To Definition  
DOMAIN 82 114 Native NH-terminus

1 MIMFPLFGKI SLGILIFVLI GDFPSLTAQT YLSLEEQEP KSAVSFLLPE ESTDLSLATK  
61 KKQPLDLRET ERQWLLRRRR SILFPNGVKI CPDESVTEAV ANHVKYFKVR VCQEAVWEK  
//

**SEQ ID NO:27** Human IPM 150 isoform A variant cDNA sequence (3261 bp)

taaaccaaga aggttatcct caatcatctg gtatcaatat ataattatatt ttcctttntg 60  
ttacttttta atgagatttg aggttggtct gtgattgta tcagaattac catgcacaaa 120  
agccaga atg tat ttg gaa act aga aga gct att ttt gtt ttt tgg att 169  
Met Tyr Leu Glu Thr Arg Arg Ala Ile Phe Val Phe Trp Ile  
1 5 10  
ttt ctc caa gtt caa gga act aaa gat atc tcc att aac ata tac cat 217  
Phe Leu Gln Val Gln Gly Thr Lys Asp Ile Ser Ile Asn Ile Tyr His  
15 20 25 30  
tct gaa act aaa gac ata gac aat ccc cca aga aat gaa aca act gaa 265  
Ser Glu Thr Lys Asp Ile Asp Asn Pro Pro Arg Asn Glu Thr Thr Glu  
35 40 45  
agt act gaa aaa atg tac aaa atg tca act atg aga cga ata ttc gat 313  
Ser Thr Glu Lys Met Tyr Lys Met Ser Thr Met Arg Arg Ile Phe Asp  
50 55 60  
ttg gca aag cat cga aca aaa aga tcc gca ttt ttc cca acg ggg gtt 361  
Leu Ala Lys His Arg Thr Lys Arg Ser Ala Phe Phe Pro Thr Gly Val  
65 70 75  
aaa gtc tgt cca cag gaa tcc atg aaa cag att tta gac agt ctt caa 409  
Lys Val Cys Pro Gln Glu Ser Met Lys Gln Ile Leu Asp Ser Leu Gln  
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Ala Tyr Tyr Arg Leu Arg Val Cys Gln Glu Ala Val Trp Glu Ala Tyr  
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Arg Ile Phe Leu Asp Arg Ile Pro Asp Thr Gly Glu Tyr Gln Asp Trp  
115 120 125  
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Val Ser Ile Cys Gln Gln Glu Thr Phe Cys Leu Phe Asp Ile Gly Lys  
130 135 140  
aac ttc agc aat tcc cag gag cac ctg gat ctt ctc cag cag aga ata 601  
Asn Phe Ser Asn Ser Gln Glu His Leu Asp Leu Leu Gln Gln Arg Ile  
145 150 155  
aaa cag aga agt ttc cct gag aga aaa gat gaa ata tct gca gag aag 649  
Lys Gln Arg Ser Phe Pro Asp Arg Lys Asp Glu Ile Ser Ala Glu Lys  
160 165 170  
aca ttg gga gag cct ggt gaa acc att gtc att tca aca gat gtt gcc 697  
Thr Leu Gly Glu Pro Gly Glu Thr Ile Val Ile Ser Thr Asp Val Ala  
175 180 185 190

aac gtc tca ctt ggg cct ttc cct ctc act cct gat gac acc ctc ctc	745
Asn Val Ser Leu Gly Pro Phe Pro Leu Thr Pro Asp Asp Thr Leu Leu	
195 200 205	
aat gaa att ctc gat aat aca ctc aac gac acc aag atg cct aca aca	793
Asn Glu Ile Leu Asp Asn Thr Leu Asn Asp Thr Lys Met Pro Thr Thr	
210 215 220	
gaa aga gaa aca gaa ttc gct gtg ttg gag gag cag agg gtg gag ctc	841
Glu Arg Glu Thr Glu Phe Ala Val Leu Glu Glu Gln Arg Val Glu Leu	
225 230 235	
agc gtc tct ctg gta aac cag aag ttc aag gca gag ctc gct gac tcc	889
Ser Val Ser Leu Val Asn Gln Lys Phe Lys Ala Glu Leu Ala Asp Ser	
240 245 250	
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Gln Ser Pro Tyr Tyr Gln Glu Leu Ala Gly Lys Ser Gln Leu Gln Met	
255 260 265 270	
caa aag ata ttt aag aaa ctt cca gga ttc aaa aaa atc cat gtg tta	985
Gln Lys Ile Phe Lys Lys Leu Pro Gly Phe Lys Lys Ile His Val Leu	
275 280 285	
gga ttt aga cca aag aaa gaa aaa gat ggc tca agc tcc aca gag atg	1033
Gly Phe Arg Pro Lys Lys Glu Lys Asp Gly Ser Ser Ser Thr Glu Met	
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Gln Leu Thr Ala Ile Phe Lys Arg His Ser Ala Glu Ala Lys Ser Pro	
305 310 315	
gca agt gac ctc ctg tct ttt gat tcc aac aaa att gaa agt gag gaa	1129
Ala Ser Asp Leu Leu Ser Phe Asp Ser Asn Lys Ile Glu Ser Glu Glu	
320 325 330	
gtc tat cat gga acc atg gag gag gac aag caa cca gaa atc tat ctc	1177
Val Tyr His Gly Thr Met Glu Glu Asp Lys Gln Pro Glu Ile Tyr Leu	
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Thr Ala Thr Asp Leu Lys Arg Leu Ile Ser Lys Ala Leu Glu Glu Glu	
355 360 365	
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Gln Ser Leu Asp Val Gly Thr Ile Gln Phe Thr Asp Glu Ile Ala Gly	
370 375 380	
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Ser Leu Pro Ala Phe Gly Pro Asp Thr Gln Ser Glu Leu Pro Thr Ser	
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Phe Ala Val Ile Thr Glu Asp Ala Thr Leu Ser Pro Glu Leu Pro Pro	
400 405 410	
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Val Glu Pro Gln Leu Glu Thr Val Asp Gly Ala Glu His Gly Leu Pro	
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Asp Thr Ser Trp Ser Pro Pro Ala Met Ala Ser Thr Ser Leu Ser Glu	
435 440 445	
gct cca cct ttc ttt atg gca tca agc atc ttc tct ctg act gat caa	1513
Ala Pro Pro Phe Phe Met Ala Ser Ser Ile Phe Ser Leu Thr Asp Gln	
450 455 460	
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Gly Thr Thr Asp Thr Met Ala Thr Asp Gln Thr Met Leu Val Pro Gly	
465 470 475	
ctc acc atc ccc acc agt gat tat tct gca atc agc caa ctg gct ctg	1609
Leu Thr Ile Pro Thr Ser Asp Tyr Ser Ala Ile Ser Gln Leu Ala Leu	
480 485 490	



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Gly Ile Ser His Pro Pro Ala Ser Ser Asp Asp Ser Arg Ser Ser Ala	
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Gly Gly Glu Asp Met Val Arg His Leu Asp Glu Met Asp Leu Ser Asp	
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act cct gcc cca tct gag gta cca gag ctc agc gaa tat gtt tct gtc	1753
Thr Pro Ala Pro Ser Glu Val Pro Glu Leu Ser Glu Tyr Val Ser Val	
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Pro Asp His Phe Leu Glu Asp Thr Thr Pro Val Ser Ala Leu Gln Tyr	
545 550 555	
atc acc act agt tct atg acc att gcc ccc aag ggc cga gag ctg gta	1849
Ile Thr Thr Ser Ser Met Thr Ile Ala Pro Lys Gly Arg Glu Leu Val	
560 565 570	
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Val Phe Phe Ser Leu Arg Val Ala Asn Met Ala Phe Ser Asn Asp Leu	
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Phe Asn Lys Ser Ser Leu Glu Tyr Arg Ala Leu Glu Gln Gln Phe Thr	
595 600 605	
cag ctg ctg gtt cca tat cta cga tcc aat ctt aca gga ttt aag caa	1993
Gln Leu Leu Val Pro Tyr Leu Arg Ser Asn Leu Thr Gly Phe Lys Gln	
610 615 620	
ctt gaa ata ctt aac ttc aga aac ggg agt gtg att gtg aat agc aaa	2041
Leu Glu Ile Leu Asn Phe Arg Asn Gly Ser Val Ile Val Asn Ser Lys	
625 630 635	
atg aag ttt gct aag tct gtg ccg tat aac ctc acc aag gct gtg cac	2089
Met Lys Phe Ala Lys Ser Val Pro Tyr Asn Leu Thr Lys Ala Val His	
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Gly Val Leu Glu Asp Phe Arg Ser Ala Ala Ala Gln Gln Leu His Leu	
655 660 665 670	
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Glu Ile Asp Ser Tyr Ser Leu Asn Ile Glu Pro Ala Asp Gln Ala Asp	
675 680 685	
ccc tgc aag ttc ctg gcc tgc ggc gaa ttt gcc caa tgt gta aag aac	2233
Pro Cys Lys Phe Leu Ala Cys Gly Glu Phe Ala Gln Cys Val Lys Asn	
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Glu Arg Thr Glu Glu Ala Glu Cys Arg Cys Lys Pro Gly Tyr Asp Ser	
705 710 715	
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Gln Gly Ser Leu Asp Gly Leu Glu Pro Gly Leu Cys Gly Leu Ala Gln	
720 725 730	
agg aat gcg agg tcc tcc agg gaa agg gag ctc cat gcg gtt cca gat	2377
Arg Asn Ala Arg Ser Ser Arg Glu Arg Glu Leu His Ala Val Pro Asp	
735 740 745 750	
cac tct gaa aat caa gca tac aaa act agt gtt aaa agt tcc aaa atc	2425
His Ser Glu Asn Gln Ala Tyr Lys Thr Ser Val Lys Ser Ser Lys Ile	
755 760 765	
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Asn Lys Ile Thr Arg	
770	
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atgggtcatc aaaatccaga catacagtca aacttgagaa tcagcacaca ccatatttca	2660

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t                                                                                   3261

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# **SEQ ID NO:28      Human IPM 150 isoform A variant amino acid sequence**

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Met Tyr Leu Glu Thr Arg Arg Ala Ile Phe Val Phe Trp Ile Phe Leu
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Gln Val Gln Gly Thr Lys Asp Ile Ser Ile Asn Ile Tyr His Ser Glu
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Thr Lys Asp Ile Asp Asn Pro Pro Arg Asn Glu Thr Thr Glu Ser Thr
          35           40           45
Glu Lys Met Tyr Lys Met Ser Thr Met Arg Arg Ile Phe Asp Leu Ala
 50           55           60
Lys His Arg Thr Lys Arg Ser Ala Phe Phe Pro Thr Gly Val Lys Val
 65           70           75           80
Cys Pro Gln Glu Ser Met Lys Gln Ile Leu Asp Ser Leu Gln Ala Tyr
          85           90           95
Tyr Arg Leu Arg Val Cys Gln Glu Ala Val Trp Glu Ala Tyr Arg Ile
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Phe Leu Asp Arg Ile Pro Asp Thr Gly Glu Tyr Gln Asp Trp Val Ser
          115          120          125
Ile Cys Gln Gln Glu Thr Phe Cys Leu Phe Asp Ile Gly Lys Asn Phe
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Ser Asn Ser Gln Glu His Leu Asp Leu Leu Gln Gln Arg Ile Lys Gln
          145          150          155          160
Arg Ser Phe Pro Asp Arg Lys Asp Glu Ile Ser Ala Glu Lys Thr Leu
          165          170          175
Gly Glu Pro Gly Glu Thr Ile Val Ile Ser Thr Asp Val Ala Asn Val
          180          185          190
Ser Leu Gly Pro Phe Pro Leu Thr Pro Asp Asp Thr Leu Leu Asn Glu
          195          200          205
Ile Leu Asp Asn Thr Leu Asn Asp Thr Lys Met Pro Thr Thr Glu Arg
          210          215          220
Glu Thr Glu Phe Ala Val Leu Glu Glu Gln Arg Val Glu Leu Ser Val
          225          230          235          240
Ser Leu Val Asn Gln Lys Phe Lys Ala Glu Leu Ala Asp Ser Gln Ser
          245          250          255
Pro Tyr Tyr Gln Glu Leu Ala Gly Lys Ser Gln Leu Gln Met Gln Lys
          260          265          270
Ile Phe Lys Lys Leu Pro Gly Phe Lys Lys Ile His Val Leu Gly Phe
          275          280          285
Arg Pro Lys Lys Glu Lys Asp Gly Ser Ser Ser Thr Glu Met Gln Leu
          290          295          300
Thr Ala Ile Phe Lys Arg His Ser Ala Glu Ala Lys Ser Pro Ala Ser
          305          310          315          320
Asp Leu Leu Ser Phe Asp Ser Asn Lys Ile Glu Ser Glu Glu Val Tyr
          325          330          335

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His	Gly	Thr	Met	Glu	Glu	Asp	Lys	Gln	Pro	Glu	Ile	Tyr	Leu	Thr	Ala		
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	370					375					380						
Pro	Ala	Phe	Gly	Pro	Asp	Thr	Gln	Ser	Glu	Leu	Pro	Thr	Ser	Phe	Ala		
385					390					395					400		
Val	Ile	Thr	Glu	Asp	Ala	Thr	Leu	Ser	Pro	Glu	Leu	Pro	Pro	Val	Glu		
			405						410					415			
Pro	Gln	Leu	Glu	Thr	Val	Asp	Gly	Ala	Glu	His	Gly	Leu	Pro	Asp	Thr		
		420						425					430				
Ser	Trp	Ser	Pro	Pro	Ala	Met	Ala	Ser	Thr	Ser	Leu	Ser	Glu	Ala	Pro		
	435					440						445					
Pro	Phe	Phe	Met	Ala	Ser	Ser	Ile	Phe	Ser	Leu	Thr	Asp	Gln	Gly	Thr		
	450					455					460						
Thr	Asp	Thr	Met	Ala	Thr	Asp	Gln	Thr	Met	Leu	Val	Pro	Gly	Leu	Thr		
465					470					475					480		
Ile	Pro	Thr	Ser	Asp	Tyr	Ser	Ala	Ile	Ser	Gln	Leu	Ala	Leu	Gly	Ile		
				485					490					495			
Ser	His	Pro	Pro	Ala	Ser	Ser	Asp	Asp	Ser	Arg	Ser	Ser	Ala	Gly	Gly		
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Glu	Asp	Met	Val	Arg	His	Leu	Asp	Glu	Met	Asp	Leu	Ser	Asp	Thr	Pro		
	515						520					525					
Ala	Pro	Ser	Glu	Val	Pro	Glu	Leu	Ser	Glu	Tyr	Val	Ser	Val	Pro	Asp		
	530					535					540						
His	Phe	Leu	Glu	Asp	Thr	Thr	Pro	Val	Ser	Ala	Leu	Gln	Tyr	Ile	Thr		
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				565					570					575			
Phe	Ser	Leu	Arg	Val	Ala	Asn	Met	Ala	Phe	Ser	Asn	Asp	Leu	Phe	Asn		
			580					585					590				
Lys	Ser	Ser	Leu	Glu	Tyr	Arg	Ala	Leu	Glu	Gln	Gln	Phe	Thr	Gln	Leu		
	595						600					605					
Leu	Val	Pro	Tyr	Leu	Arg	Ser	Asn	Leu	Thr	Gly	Phe	Lys	Gln	Leu	Glu		
	610					615					620						
Ile	Leu	Asn	Phe	Arg	Asn	Gly	Ser	Val	Ile	Val	Asn	Ser	Lys	Met	Lys		
625					630					635					640		
Phe	Ala	Lys	Ser	Val	Pro	Tyr	Asn	Leu	Thr	Lys	Ala	Val	His	Gly	Val		
				645					650					655			
Leu	Glu	Asp	Phe	Arg	Ser	Ala	Ala	Ala	Gln	Gln	Leu	His	Leu	Glu	Ile		
		660					665						670				
Asp	Ser	Tyr	Ser	Leu	Asn	Ile	Glu	Pro	Ala	Asp	Gln	Ala	Asp	Pro	Cys		
	675					680						685					
Lys	Phe	Leu	Ala	Cys	Gly	Glu	Phe	Ala	Gln	Cys	Val	Lys	Asn	Glu	Arg		
	690					695					700						
Thr	Glu	Glu	Ala	Glu	Cys	Arg	Cys	Lys	Pro	Gly	Tyr	Asp	Ser	Gln	Gly		
705					710					715					720		
Ser	Leu	Asp	Gly	Leu	Glu	Pro	Gly	Leu	Cys	Gly	Leu	Ala	Gln	Arg	Asn		
				725					730					735			
Ala	Arg	Ser	Ser	Arg	Glu	Arg	Glu	Leu	His	Ala	Val	Pro	Asp	His	Ser		
		740						745					750				
Glu	Asn	Gln	Ala	Tyr	Lys	Thr	Ser	Val	Lys	Ser	Ser	Lys	Ile	Asn	Lys		
	755						760					765					
Ile	Thr	Arg															
	770																